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SOUND & VISION

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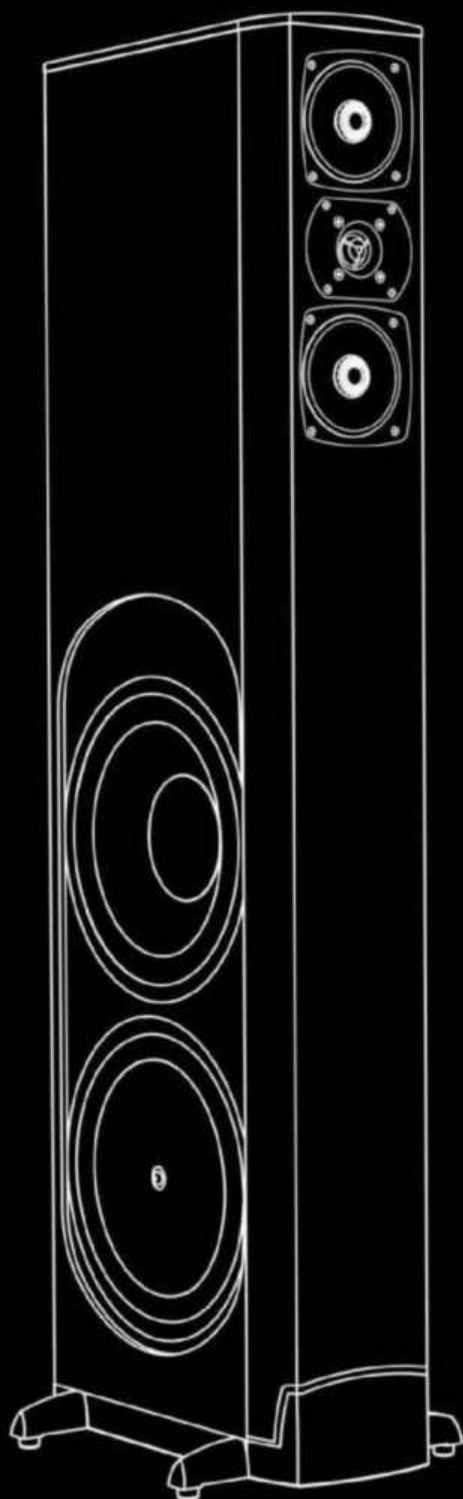
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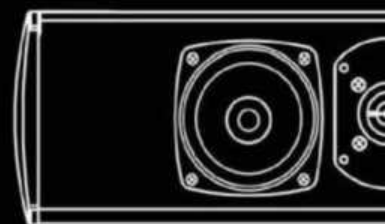


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Preview

ON THE COVER Hi-Res in Every Room: Audiophile sound quality from Raumfeld. Additional gear from Artison, Denon, LG, Vizio, and Zvox. Screen image courtesy of Warner Bros.



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GoldenEar's ForceField Subs: "Near perfect... a tour de force"

— Andrew Robinson, *HomeTheaterReview.com*



"Thunderous...Room-Shaking"

— Al Griffin, *Sound&Vision Magazine*

GoldenEar's ForceField subwoofers are true over-the-top super subs that are especially remarkable for their compact size and unusually affordable prices. All three incorporate the same advanced technology and components including: DSP controlled high-power digital amplifiers (1000, 1200 or 1500 watts), ultra-fast long-throw high-gauss magnet structure drivers (8", 10" or 12") and pressure-coupled downward-firing quadratic planar infrasonic radiators. In addition, their uniquely shaped cabinets are not just attractive, but are also purposefully configured for dramatic performance benefits.

"Extraordinary bass prowess... I've never heard a sub this small go that deep"

— Steve Guttenberg, *The Audiophile*

With their high output capability, stunning impact, superbly musical bass articulation and breathtaking infrasonic low frequency capabilities, the ForceFields have received the highest praise from critics, experts and knowledgeable listeners around the world. Geoff Morrison of Residential Systems raved, "their thunder filled the room." AV Forums praised the, "monstrous output for such a small sub." Mark Fleischman of *Home Theater* wrote, "I was dumfounded" over their, "low frequency barrages with floor-shaking confidence." And to top it off, the British writer Stephen May raved, "this astonishing box can pressure-load a room like an angry Silverback" and Andrew Robinson warns, "Your walls, floorboards, and ceiling may just crap out on you." And, as Dennis Burger of *Tech Tell* observed, they are also, "shockingly musical!"

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December 2015

TrackOne

WHY HI-RES AUDIO WILL SUCCEED

Some things are just unstoppable.



As we were sending this issue to the printer, *Sound & Vision's* editorial staff was also putting the finishing touches on a dedicated "Guide to High-Resolution Audio." Produced in partnership with the Consumer Electronics Association, the group that represents audio equipment manufacturers and retailers (and also puts on the annual CES trade show), the Guide explains the technical aspects of Hi-Res Audio in layman's terms, describes how to best enjoy it, and reports on what the electronics and music industries are doing to guarantee that those who adopt hi-res have a positive experience they can be excited about sharing with friends and family. By the time you read

this, the full Guide contents should be available on our Website at soundandvision.com. We'll share some of the features we created for this project with you in future issues, but feel free to have a look.

Despite the perhaps questionable affiliation (through CEA) with manufacturers whose products we are charged with reviewing, I was quick to sign up as the expert editorial voice for this project for the good I thought we could do educating the public. I've made no secret in these pages of my bullishness for HRA. In the first place, I readily hear the difference hi-res can make, especially in comparison to the stripped-down MP3 and AAC libraries or anemic streaming services the majority of consumers use today as their primary music source. Hi-res lets you keep the convenience of digital music without the inherent sacrifice in sound quality we've endured to date. With HRA, we stand to bring a truly engaging and powerful music listening experience to many more people than with any development that's preceded it, and to finally deliver to end users the full impact of what musicians and recording engineers are creating in their studios.

More critically, putting aside any current market barriers to the adoption of HRA, I believe that High-Resolution Audio is inevitable. Just as video technology marches on with or without our help, with equipment makers and content providers adding more and more pixels with each new generation, HRA is simply the music industry and its affiliated suppliers catching up with the quality standards of our time. For video, we went for most of the last century with standard-definition CRT displays. Starting in the late 1990s, that went to high-definition, and now ultra-high-definition flat panels that will offer even more detail, a wider color gamut, and high dynamic range content.

Similarly, for audio, we started with a generation of analog music delivered eventually on vinyl, and later, as a convenience play, lower-fidelity magnetic tape cassettes. In the mid 1980s we took the leap to digital with the advent of the Compact Disc—a format that many audiophiles felt was insufficient data-wise to begin with—then took another step back in sound quality for the convenience of the iPod and heavily compressed downloads. Now, HRA is taking advantage of a faster and wider Internet pipeline, along with cheaper processing and memory chips in our devices, to deliver better-than-CD-quality digital audio to audiophiles and mass market music lovers alike. For its part, the music industry is just awaking to the possibilities and starting to pay more attention to both its recording processes and its marketing practices.

So whether you adopt HRA today or wait for it to become the de facto standard for downloads and streaming (undoubtedly at lower prices than you see today), you're going to be listening to High-Resolution Audio. It's coming no matter what, and we should thank our stars for that. It's been a long, long wait.

JS

**The adoption
of High-Resolution
Audio is inevitable.**

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GoldenEar's 3D Array Soundbar is "Absolutely Unbelievable"

— Darryl Wilkinson, *Home Theater Magazine*



3D Array \$999

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"Most exciting soundbar demo I heard"
— Brent Butterworth, *Sound&Vision Magazine*

We call the SuperCinema 3D Array, quite simply, "an extra-ordinary high-end loud-speaker system disguised as a soundbar." It is designed to combine the form factor of a sleek, stylish soundbar, with the performance of a true, high quality, component system. The complete ultra-high-performance system would include a powered subwoofer and a receiver or separates; plus the 3D Array achieves superb three-dimensional surround performance with or without rear surround speakers. Its 2.7" thin cabinet is constructed of aircraft-grade aluminum and contains six of GoldenEar's signature cast spider leg basket bass/midrange drivers and three High-Velocity Folded Ribbon Tweeters along with our breakthrough 3D Technology that cancels interaural crosstalk distortion for total sonic immersion.



High-Velocity Folded
Ribbon Tweeter (HVFR™)



High-Definition Cast-Basket
Bass/Midrange Driver

"Awesome just got redefined"

— Darryl Wilkinson, *Home Theater Magazine*

The 3D Array sounds amazing and the experts certainly agree. Al Griffin of *Sound & Vision* wrote that the 3D Array System, "...delivered at least 90% of my main rig's [Triton Two Towers] performance." Chris Martens of *The Absolute Sound* raved, "...a soundbar system so good that audiophiles might buy it for music playback alone...if asked to recommend a soundbar to please finicky, hypercritical audiophiles, this would be my hands down choice." And *Home Theater*'s Darryl Wilkinson summed it up perfectly when he raved that, "the width and openness of the soundstage was absolutely incredible" calling it "an instant classic" that is "a must-listen-to, top-of-the shopping list, soundbar-to-beat...when it comes to soundbars awesome just got redefined."

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SOUND & VISION

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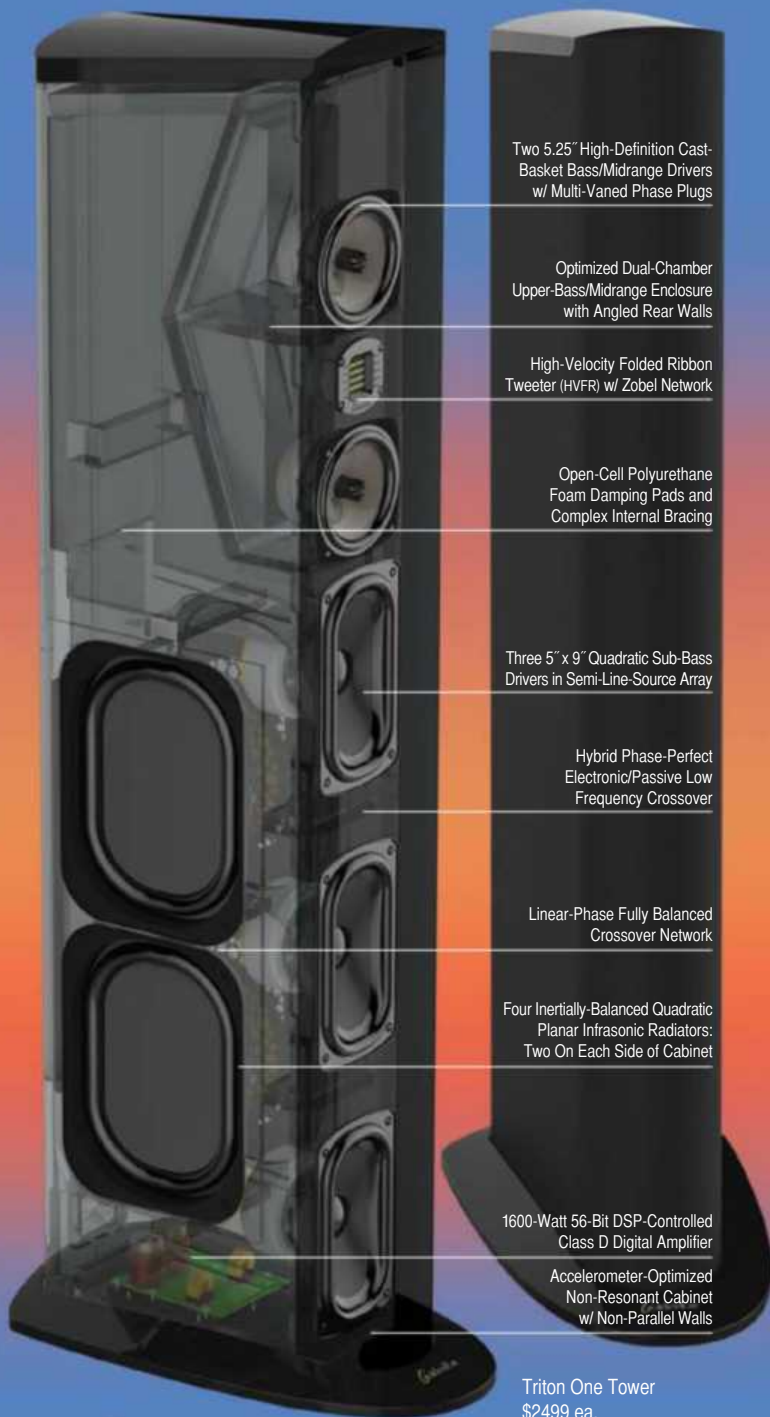
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GoldenEar has Engineered Our New Triton One to Perform Like a \$20,000+ Super Speaker!

"Revelatory ... cosmically orgasmic ... astounding performance-vs-price ... these speakers absolutely embalm the competition" – Darryl Wilkinson, *Sound & Vision*



"Triton One shames some speakers costing ten times as much ... it is an absolute marvel"

– Caleb Denison, *Digital Trends*

"Best High-End Value at CES 2014 ... Sandy has created a speaker that defies its price point"

– John Sciacca, *Residential Systems*

"Best of CES 2014 ... stunning realism ... the sound was truly grand and majestic"

– Roger Kanno, *SoundStage*

"Best Sound for the Money at CES 2014"

– Jonathan Valin, Kirk Midskog and Neil Gader, *The Absolute Sound*

Introducing Triton One, an evolutionary speaker that builds upon advanced technologies that have made Tritons mega-hits around the world. Stereophile called them, *"A Giant Killer Speaker"* and Robert Deutsch further added, *"it's not unreasonable to compare the sound of the \$4998 Triton One with speakers costing tens of thousands of dollars more"*. This new top-of-the-line flagship was engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. How well have we succeeded? In the words of HD Living's Dennis Burger, the Triton One delivers, *"... the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile"*.

Triton One "creates visceral, tangible waves of pure audio bliss"

– Dennis Burger, *HD Living*

Great sound is what it is all about and the Triton Ones deliver, as The Absolute Sound's Anthony Cordesman wrote *"they provide sustained musical pleasure and exceptional realism ... extraordinary sound quality and value ... one of the best buys in speakers ... highly recommended"*. The Ones were specifically engineered to excel with all types of music as well as movies. Best of all, they offer previously unheard of value, as Brent Butterworth wrote in *Sound & Vision*, *"I heard a few people saying the Triton One sounded like some \$20,000-and-up high-end towers, but I disagree: I think they sounded better than most of them"*. Hi Fi's Chris Martens raved the Ones are, *"jaw-droppingly good ... one of the greatest high-end bargains of all time with a dazzling array of sonic characteristics"*. And Darryl Wilkinson summed them up best, *"A Masterpiece ... GoldenEar has fully ushered in the Golden Age of the Loudspeaker"*. Hear them for yourself and discover what all the excitement is about.

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Pictured here: Lincoln Black Label MKX Thoroughbred. Available at participating Lincoln Black Label dealerships only.

Letters

We welcome
questions and
comments

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Who Screwed My Soundtrack?

In Mark Fleischmann's review of the Klipsch Reference Premiere RP-150M Speaker System (Test Report, October 2015), he states that all movies used were Blu-ray with a DTS-HD Master Audio soundtrack. Later in the review he states that "Netflix will have to wait a little longer" for him to return *The Hobbit: The Battle of the Five Armies*.

I stopped paying Netflix extra dollars for Blu-ray years ago, because every disc I got was some special rental version that had only Dolby Digital 5.1, with no Dolby TrueHD, no DTS-HD Master Audio. So what was Mr. Fleischmann listening to? A special Netflix perk for journalists, or has Netflix ended its odious practice?

Greg Opfel
Portland, OR

I checked in with Mark on this, who noted that the soundtrack in question was indeed DTS-HD Master Audio. "Most of my Netflix Blu-ray rental discs are DTS-HD MA; Dolby Digital is comparatively rare, though I get one of those occasionally and note it in the text," he said. He checks these by setting his Oppo player to bitstream output and verifies the best soundtrack type available with the Oppo onscreen display and his AVR readout. Mark added, "I think the reader is confused because some discs do come with Dolby Digital instead of one of the lossless codecs (I used to single these out for condemnation in text). However, to the best of my knowledge, it's the studio's choice. A minority of discs are identified as special rental copies, but I don't add that to my notes, and I don't know if that extends to a change in codec."

Coincidentally, Ken Pohlmann's Signals column this month (page 28) addresses this issue and the outcry in the A/V enthusiast community over the replacement of lossless codecs with lossy on some rental discs from Netflix and Redbox, apparently many of these from Lionsgate. When this happens, the conjecture is that it's related to costs. I had always presumed this was done to avoid additional license fees (a Dolby Digital track of some kind is mandatory for all Blu-rays, but DTS is not), though Ken points out that the larger data requirements for lossless soundtracks and disc extras can push a single-layer disc into dual-layer territory, driving up the manufacturing cost of thousands of rental discs with limited life that are needed to service customers for the brief initial release period. Another possible explanation: Dolby Digital plays by default on nearly all TVs and connected sound systems with no need to select it from the disc or player menu or to change the player output from bitstream to PCM. Not so with DTS, for which many soundbars and TVs still lack a decoder. Using Dolby Digital for the multichannel track might seem the prudent move if you expect non-techies to successfully play every disc.—RS



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LETTERS

Who Screwed My Picture?

I am really amazed at DirecTV not allowing customers to use the HDMI connection and forcing them to use the component connection due to copyright protection. It first happened to my brother, and I figured it was because his TV was older, although it does have HDCP. Then it happened to my parents with their plasma TV that is not more than two or three years old. It just makes no sense that people pay good money for a TV that can produce a great picture, and then you pay DirecTV good money for programming and they forcibly "dumb down" your TV. I know DirecTV will be providing 4K content, but these are TVs that are not even capable of 4K. Thus, I just can't figure why this is happening.

Robert Williams
Arlington, TX

Not being a DirecTV customer, I was skeptical to learn that the company's late-generation set-top boxes would not pass a high-def signal via HDMI to relatively current HDTVs that presumably offer some iteration of HDCP copyright protection. But Mr. Williams confirmed in follow-up correspondence that he does A/V installation work and is by no means mistaken about this. "My dad and brother both have contacted DirecTV about this," he explained, reporting that the customer service reps "go through a whole explanation on how this is to protect them as the customer. What a bunch of hogwash. They actually mailed them the component cables because the connection on the back of the newer DirecTV units is proprietary (looks similar to an S-video connection) with a normal RGB analog component cable connection on the TV side. They offer no other explanation or solution except sending them the component cable. Needless to say, my dad and brother are looking into switching to Dish Network." Anybody else out there encountering similar issues?—RS

Where Is My Hi-Res?

The theme of your Graham Parker music review (*Mystery Glue*, Reference Tracks, October) is Hi-Res Audio, yet at the bottom where the stats are, it says the release format is CD at 16/44.1. Is there an HRA download available? One would think so given the comments. Why, then, wouldn't the stats box list both formats?—RS

Leslie Ann Jones
Skywalker Sound

Apologies, that was an error on our part. There is indeed a 96-kHz/24-bit version of this album available at the big hi-res online stores. We do try to cite all the available versions of the albums we review, including both disc and download formats, though the Hi-Res Audio release for this wasn't available or confirmed as such at press time.—RS

Where Is My Atmos Upgrade?

After reading your informative article "How to Buy an A/V Receiver" and your AVR test reports in the October issue, I noticed that the Atmos-capable receivers reviewed have simply repurposed the "Zone 2" speaker outputs to

become Atmos height channels. Seeing as I just bought a new receiver *right* before Atmos dropped, and my Zone 2 channels are just sitting there with nothing plugged into them, is there any way via software update (for decoding) and/or manufacturable augmentation to a unit that can be done to simply reroute them? Come on, they're just sitting there!

Matt Mahaffey
Via e-mail

We've gotten a few letters asking the same question, and I'm afraid the answer is "no." The issue is really in the processing power built into the receiver. If it wasn't engineered with a powerful enough processing chip to handle the complexities of decoding Atmos/DTS:X soundtracks, or built with enough onboard memory, it can't be flashed with new software to make that happen. All the AVRs sold last year as Atmos-ready or Atmos-enabled were engineered with Atmos and possibly DTS:X in mind. Replacing that chip in those that were not would be a cost-prohibitive hardware upgrade. Sorry to deliver the bad news.—RS

Why Can't You Count?

I enjoyed Rob Sabin's article on A/V receivers (October). But I take exception to him incorrectly defining an A/V receiver as two, not three components in one box. Back in the day, a "receiver" always had a radio. There were no CD/DVD players or cable boxes to plug in, or even near-field signals to receive. In fact, only turntables, and for the serious enthusiast, reel-to-reel tape machines were connected. I can't help but visualize the Fisher 500 TX that I proudly displayed on my shelf in the '70s. Its row of mechanical preset AM/FM channel buttons was a wonder to behold. The 500 TX had "a wideband AM FM stereo tuner; a versatile, low-noise preamp control unit; and a wideband, low-distortion power amplifier."

Although Spotify, Pandora, Sirius Radio, and others have displaced the usefulness of tuners in receivers to a great extent, public radio, news, sports, and even music still fill the airways and allow all our A/V receivers to enjoy a free source of news and entertainment.

Barry Jay Miller
San Jose, CA

Guilty as accused, and I should have known better. As Barry pointed out elsewhere in his letter, a preamp and power amp together constitute an integrated amp, and the audio/video receiver does indeed get its name from the radio tuner that has always been imbedded and still remains so. It's also true that our ability to stream local and distant radio stations from Internet services like TuneIn, and get curated or customized playlists from Pandora and Spotify (without the noise and spotty reception of conventional over-air broadcast) are leading us to the day when we might start seeing AVRs that no longer include a real radio tuner. Technically, though, they're still receiving something from your network, so maybe we can keep the name. Who among you remains married to your AM/FM tuner in this age of Internet?—RS

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Perfect focus

NEW GEAR, TOP NEWS, HOW TO, AND MORE...

Edited by Claire Crowley

Let There Be Light

● 15 Minutes with DLP Inventor Larry Hornbeck

When Larry Hornbeck stepped up to the podium to accept an Oscar for inventing the digital micromirror device—the core technology behind DLP video projection—he held up a postage-stamp-sized DMD chip and said: “It’s hard to believe that there are more than 8 million digital micromirrors on this device. Who would ever have believed that [this invention] would change the way the world views cinema.” A couple decades later, I’m still trying to wrap my head around the idea of 8 million microscopic mirrors tilting at precise angles and reflecting light to create stunning images at home and in movie theaters. So I reached out to Dr. Hornbeck, holder of 38 U.S. patents and winner of numerous awards and honors, to learn more about his crazy invention.

S&V: How did the idea for the digital micromirror device (DMD) come about? Was there a eureka moment?

LH: The DMD is a simple concept. When a mirror flips *on*, a bright spot of light is created at the projection

screen. When a mirror flips *off*, the spot goes dark. Flip 8 million DMD micromirrors at rates up to 10,000 times a second, and incredible imagery is created on a movie screen. It seems that a concept that simple should have a eureka moment and, indeed, according to folklore, there are two versions of my eureka moment:

1) I was driving to work one morning in my 1977 Chevy pickup and saw a flash of light from a glass door as it was suddenly opened and closed.

2) I was in a football stadium where fans were flipping flash cards.

Neither version is true!

In reality, the idea for DMDs came about along an evolutionary path that began in Texas Instruments’ Central Research Laboratories in 1977 where I and a small team began the development of “deformable mirrors” to manipulate light in an analog fashion. But the analog technology consistently fell short of expectations. It was not until 1987 that I invented the DMD, the breakthrough technology that would become known as the DLP chip.

S&V: The concept of millions of individually controlled micromirrors seems so outlandish. Was there a specific business or scientific “problem” or obstacle you were trying to overcome?

LH: Yes. In the mid-1980s, we were intrigued with the possibility that a light modulator array of analog micromirrors integrated on a silicon chip could bring superior performance to digital printing technology. By 1986, I had developed and patented a technique for building analog micromirrors in a standard semiconductor fab. However, the light uniformity was poor and drifted with time.

In 1987, with no other alternative in

sight, I began using the micromirrors as simple on/off optical switches and implemented pulse-width modulation techniques to generate a digital image. Soon I filed a patent application for this breakthrough light modulator technology.

Although less than 10,000 digital micromirrors would be required for the digital printing application, by 1990 [we] could envisage DMD chips with millions of digital micromirrors for applications including digital projection and high-definition television!

In 1991, TI formed a corporate-level venture project to commercialize DMD technology, and the rest is history.

S&V: What was the toughest barrier you had to overcome in bringing the DMD technology to fruition?

LH: I had to overcome many technical hurdles that had plagued researchers for years as they attempted to develop microdisplays as projection display alternatives to the cathode-ray tube (CRT).

The DMD brought some unique hurdles. For example, how do you reliably flip millions of digital micromirrors for trillions of cycles? Patented innovations in chip manufacturing and packaging are the answer to that question.

Looking back on my experience over the course of nearly 40 years, I can tell you that if you want to create a game-changing technology, then you have to work for a company like TI and a team of wonderful engineers that gives its people the opportunity to deploy their passion



● DLP inventor Larry Hornbeck

and creativity and push the boundaries of the impossible.

From the beginning, TI provided the tools and resources to develop the technology through a number of fundamental transformations before it was ready for full-scale commercialization—

from hybrid manufacturing to monolithic integration on silicon, from analog to digital operation, and from the initial applications of optical processing and later digital printing, to the DLP Cinema display

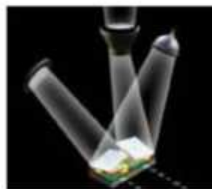
application for which it is well known today!

S&V: How long did it take to develop a working DMD prototype?

LH: Surprisingly, once the decision was made in late 1986 to abandon the analog micromirror approach, it took us less than one year to model, design, and manufacture the first

proof-of-concept chip, an array of 512 digital micromirrors.

However, the first prototype chip and projection system would take nearly five years of development time.—Bob Ankosko



● A pair of digital micromirrors in action and a DLP Cinema chip.

An extended version of this interview appears on soundandvision.com.



● Hornbeck and his wife at the digital projection showing of *The Phantom Menace* in 1999.

● Hornbeck and colleagues at TI's DMD test facility in 1992.



This Just In...

By Mark Fleischmann

Sony's Dolby Atmos Blu-ray

releases will include not just new titles but reissues of classics like Luc Besson's *The Fifth Element* and *Leon: The Professional*, and Francis Coppola's *Bram Stoker's Dracula*, all sound-designed with home theater in mind...



Chromecast Now Does HBO

thanks to an update to the HBO Now apps for Android and iOS devices. That's a cheap way to get HBO Now into your system, with the Google dongle costing just \$30 at Best Buy or Walmart...

Ultra HD Blu-ray

will support several black-level-enhancing HDR standards. One optional feature will be a "digital bridge" that downloads a movie into the player or another storage device...

LG's First HDR OLED TVs

are the 65-inch 65EF9500 (\$7,000) and 55-inch 55EF9500 (\$5,500). A firmware update will bring HDR to EG9600 sets in the same screen sizes...

LG Launched a Hi-Res Music

service for premium smartphones with an app supporting up to 192-kHz/24-bit resolution and two free tracks per month. Compatible models

include the G4, G3, G2, and G Flex 2...

TiVo's Next-Generation DVR

line will be called Bolt. One model will include a legal version of the Aereo live-TV-over-Internet service...

Roku Is the Top Streaming

platform in U.S. homes, with a 34 percent market share in 2014, according to Parks Associates. Runners-up are Chromecast (19 percent), Apple TV (17 percent), and Amazon Fire TV (14 percent)...

NBC Universal Refused to Air

ads for Sling TV on four of its TV stations. Of course, Sling competes with cable services—like, say, those from Comcast, owner of NBC Universal...

Comcast's ISP Customers

surpassed its video subscribers, for the first time, in the second quarter of this year. Gaining 180,000

Internet accounts took the sting out of losing 69,000 video accounts...

Verizon Gained

26,000 FIOS TV subscribers in the second quarter, down from 100,000 same time last year.

Pay-TV Operators Lost

566,000 subscribers in the second quarter, way up from the loss of 321,000 same time last year, making the impact of cord-cutting impossible to deny. "That may not seem like a mass exodus," said analyst Craig Moffett of Moffett-Nathanson, "but it is a big change in a short period of time"...

Cord-Cutters Want

lower pricing, not better content, said the Video Advertising Bureau. "The majority of cord-cutters and cord-nevers cannot afford multichannel TV subscriptions"...

Internet-Connected TVs Will Soar

to 876 million units worldwide by 2020, said Digital TV Research, more than double 2015's tally. With China alone going from 21 million in 2014 to a projected 184 million by 2020, the Asia Pacific region will have the most connected TVs by 2017...

Internet-Connected Audio Devices

in use will rise from 58 million in 2014 to 267 million in 2018. By then, smartphones and tablets are expected to make up 83 percent of connected audio devices shipped...

CableCARDs Are in 53 Million

set-top boxes according to the National Cable & Telecommunications Association, versus just 617,000 in card-enabled TVs, TiVos, and retail boxes. An FCC panel is now looking for the card's next-generation successor...

Will Low-Power TV Stations

and translators get lost in the shuffle when the FCC's upcoming auction reallocates DTV spectrum to mobile broadband? Some viewers may lose some channels, and the National Association of Broadcasters is asking the FCC to study the problem...

MovieTube Has Been Sued

by the Motion Picture Association of America,

which demands that every domain registrar, hosting provider, payment processor, caching service, ad network, social network, and bulletin board block and filter the allegedly copyright-infringing site. The Electronic Frontier Foundation says this would give the court powers Congress denied when it refused to pass SOPA (the Stop Online Piracy Act) in 2012...

Sony.com Is No Longer

a retail site. It relaunched recently as an information-only site...

Nielsen's Local TV Voter Ratings

have been licensed in six markets where, said the rating service, "our clients can deliver key voter segments to political advertisers with greater efficiency and effectiveness than ever before." Well, that'll help us sleep better at night...

Polyera's Wove Band,

billed as the world's first flexible display, can operate flat or wrapped around your wrist. It is slated for launch in 2016...



Hands on

BenQ treVolo Electrostatic Bluetooth Speaker

By Al Griffin

Electro Ecstatic

PRICE \$300

PORTABLE BLUETOOTH

speakers range from toy-like novelties you can tote along in the shower to high-end Danish audio lunch boxes designed to survive a day at the beach. In between, you'll find plenty of other options ranging from cheap and bad-sounding to pricey and good-sounding.

With Bluetooth speakers starting to become not just a popular, but a *default* audio playback system for many people, it's perhaps time to take the category seriously. BenQ, a company best known for video monitors and projectors, has entered the crowded Bluetooth speaker arena with an attention-grabbing effort: a compact portable design that uses electrostatic panels—the same tech found in speakers from companies like MartinLogan—to convey sound. If that doesn't count as a bid for Bluetooth speaker seriousness, I don't know what would.

The eye-catching treVolo's dual electrostatic panels fold out for playback and can be retracted when not in use. The speaker's solid cabinet houses two 2.5-inch woofers and two 2.5 x 4-inch passive radiators, with a 4 x 10-watt Class D amp powering both the panels and woofers. Rated battery life is 12 hours before the treVolo needs to be plugged in for a recharge.

AT A GLANCE

+ Plus

- Spacious sound
- Fold-up, portable design
- Cool conversation piece

- Minus

- Limited volume
- Limited bass
- Priced compared with Bluetooth speakers with similar volume/bass capabilities

In addition to its aptX Bluetooth wireless connection, the treVolo has a Micro USB input (48-kilohertz/16-bit) to connect directly to a computer, plus a 3.5mm analog input. There's also an analog line out connection for audio passthrough should you ever have need to use the treVolo as a basic aptX Bluetooth receiver to feed an external audio system.

Setup

Setting up the treVolo for playback was a pain-free process. Once fully charged, you press a button on its top surface to initiate Bluetooth pairing with your phone or other device, and then listen for an electronic bloop that

signals a successful connection. Tapping the Mode button cycles through the speaker's Pure, Warm, and Vivid modes, which are indicated respectively by green, red, or blue LEDs. BenQ's lit describes the Pure mode as providing "an accurate tonal balance with minimal equalization," so that's the one I used for most of my listening. (Vivid sounded too edgy, while Warm seemed to provide no audible benefit over Pure.) Other buttons on the treVolo's top let you answer/hang up calls when using your phone as a source, and adjust volume.

Performance

With the regular, non-audiophile world looking to the humble Bluetooth speaker as a primary music playback system, you can imagine what kind of pressure it's under to perform. Sadly, most aren't up to the task—when you push volume past a certain level, the sound often gets bloated and strained, the presentation boxy and monophonic. BenQ's treVolo, however, is in a different league.

That's not to say the treVolo can fill a room with sound—it is more of a bedside or tabletop speaker, one best equipped to play certain types of music at a reasonable volume level. When I streamed "Verses" from Olafur Arnolds and Alice Sara Ott's *The Chopin Project* via Tidal, the layered cellos and violins sounded detailed and lush and had plenty of space and air. Soft rock tracks such as "Should Have Known Better" from Sufjan Stevens' *Carrie & Lowell* came across equally rich, with a natural timbre to the vocals and acoustic guitar.

Another music genre that let the treVolo shine was electronic, and particularly ambient electronic, music. Listening to Harold Budd's "The White Arcades," the billowing layers of synthesizer and piano had a dense, atmospheric presentation that extended well beyond the speaker—something I've never experienced with a portable Bluetooth model. Moving to Aphex Twin's "diskhat ALL prepared1mix" from *Computer Controlled Acoustic Instruments*, the plucked piano strings sounded rich and resonant,

RATING

BenQ treVolo Electrostatic Bluetooth Speaker

Performance ★★★★★
Features ★★★★★
Ergonomics ★★★★★
Value ★★★★★

THE VERDICT

BenQ's treVolo is a lush-sounding Bluetooth speaker that should please audiophiles with reasonable expectations.

and the reverberant electronic beats had an equally smooth presentation.

To give you an idea of what the treVolo can't do well, I took advantage of the sudden appearance of Led Zeppelin's catalog on Tidal and cued up "Good Times, Bad Times." The sound, to put it bluntly, was bass-shy and constrained. The treVolo does lots of stuff well, but rockin' out isn't one of them.

Conclusion

For 300 bucks, BenQ's treVolo may seem pricey for a Bluetooth speaker that's in its comfort zone mostly when playing ambient music and Chopin string quartets at moderate volumes. But if you like that sort of music, and if you enter the situation with reasonable expectations—by that I mean not expecting the treVolo to supplant a regular component-based stereo system—the appeal of BenQ's speaker will quickly become apparent. In a world packed with not-too-impressive Bluetooth speakers, the treVolo's refined sound, cool design, and innovative tech make it stand head and shoulders above the crowd.

SPECS

Electrostatic panel (2), 2.5 in woofer (2), 4 x 2.5 in passive radiator (2)
• **Dimensions (WxHxD, Inches):** 3.1 x 5.3 x 6.9 (folded); 10.8 x 5.3 x 6.9 (in use) • **Weight (Pounds):** 2.6 • **Power:** 10 watts x 4 • **Inputs:** Micro USB (48-kilohertz/16-bit), 3.5mm analog stereo • **Outputs:** 3.5mm analog stereo • **Rated Battery Life:** 12 hours

The Connected Life

JOHN SCIACCA

All About That Bass



When you consider that subwoofers cover a scant 0.3 percent of the audible spectrum—from 20 to 80 hertz—it

might be easy to discount just how important bass is to solid audio playback. I mean, who would complain about having a solid 99.7 percent, right? But when you take those crucial two octaves away, everything else sounds thin and diminished, showing just how important a solid low-end foundation is for your audio playback system.

I always suggest that my custom install clients purchase the best subwoofer they can afford, as a sub that plays both lower and louder without distorting raises the performance of the entire speaker system. This is especially true when using bass-shy small speakers and when the bass management in an AVR or preamp is routing low-frequency signals from other channels to the

When you take those two crucial octaves away, everything else sounds thin.

sub. While a center speaker might be the most important speaker in your system, the sub delivers the most impact.

Here are three things you can do to make sure your system is all about that bass, and I guarantee it will have your audio sounding better than ever!

Add a Second Sub

Many receivers now include a second sub output, typically feeding the same mono ".1" subwoofer signal to both jacks. Whether you use this or a simple Y adapter to connect a second sub, you'll gain more than some extra bass volume. The real benefit of adding an additional sub is smoother bass response across a wider range of seating positions. Properly installed, two subs help reduce boomy peaks and bass suck-out locations that occur in every room. I recently added a second Def Tech SuperCube 8000 in my theater. The bass is not only more even, it has more depth and presence, even at lower listening levels. In more sophisticated AVRs, room correction technologies like Audyssey's MultEQ XT32 can calibrate for dual-sub installs by first measuring each sub independently, applying delay and level settings so the two subs are time- and level-aligned, and



then measuring them together as "one" to create the appropriate room correction.

Housewide Sub

Many distributed audio systems use in-wall or in-ceiling speakers throughout the house, and while these are visually discreet, they often don't offer much bass output. Even if you start with a quality speaker, many times it is underpowered, robbed of potential bass performance and dynamics. The solution is adding a sub; you won't believe how good your in-wall/ceiling speakers will sound when they have some real low end backing them up! While there are a variety of great in-wall/ceiling subwoofers, these are typically passive designs that require onboard amplification and can easily cost \$1,000 or more. Adding a compact sub that accepts high-level speaker wire inputs (such as GoldenEar Technology's Force Field 3) is a far cheaper solution. This way, the sub amplifies the signal for its own use, and the high-pass crossover and volume control ensures you can blend the bass to match the acoustics of the room and the performance of your speakers.

Larger Drivers

You can also improve your bottom end by going with speakers that have larger bass drivers. This is especially true for distributed audio systems using in-ceiling speakers that often have 5.25- or 6.5-inch woofers that would be hard-pressed to make Barry White sound like, well, Barry White. People often shy away from larger speakers because of cosmetics, but many manufacturers have gone to bezel-less grille designs, making the speakers appear smaller. Even better, relative newcomer, Origin Acoustics found a way to put larger drivers in smaller spaces, with 10-inch drivers that fit in traditional 8-inch cutouts and 8-inch drivers that fit in other manufacturers' 6.5-inch holes. I recently upgraded to some Origin 10-inch models in my home, and the results are incredibly impressive, with bass notes that I can actually *feel*, bringing real weight and presence to every music genre. [Ed. Note: See our review of Origin's 10-inch D108 at soundandvision.com/.]

DTS:X Coming to Movie Theaters

Look out, Dolby Atmos. Another object-oriented surround sound system is coming to town. The DTS:X system hit Carmike Cinemas—owned theaters in September with Lionsgate titles *American Ultra* and *Sicario* and in November with *Mockingjay: Part 2*. Carmike upgraded seven theaters in Georgia, Colorado, Illinois, Tennessee, California, and Alabama. DTS:X and Atmos both enable soundtrack mixes to use metadata to steer objects around a three-dimensional soundfield. In addition to its theatrical debut, DTS:X is also following Atmos into home theaters with compatible A/V receivers and Blu-ray Disc releases.—MF



Live TV Is Still First Choice

One-third of viewers casting around for something to watch still make live TV their first port of call, said a Hub Entertainment study. However, that's down from 50 percent in 2013, and Netflix is making inroads among younger viewers. Millennials prefer live TV to Netflix by just 33 to 31 percent. And those 16 to 24 prefer Netflix over live TV by 40 to 26 percent.—MF



PSB Speakers M4U 4 Headphone

By Steve Guttenberg

Tell the Truth

PRICE \$299

PSB SPEAKERS' PAUL BARTON is a quick learner. After decades designing his company's speakers, he jumped into headphones with the PSB M4U 2 full-size, noise-canceling 'phones. The M4U 2 was hailed by critics and consumers alike, and his next design for NAD, the Viso HP50, was even better. Barton was clearly on a roll. Now, with the M4U 4, Barton may be the first celebrated speaker designer to ever tackle crafting an in-ear headphone.

While most in-ear headphones have dynamic or balanced armature drivers, the M4U 4 Hybrid Dual-Driver System uses both. Barton selected a balanced armature driver (BA) for its low distortion and extended high-frequency response, and the dynamic driver for its bass potency. Inside the earpiece, there's a waveguide linking the BA driver with the proprietary 8mm dynamic driver. The two drivers are time-aligned, and Barton uses surface-mount parts for the crossover network that divides the signal between the two drivers starting at 2.5 kilohertz.

AT A GLANCE

+ Plus

- Two-way hybrid dual-driver design
- User-replaceable cables
- Two-year warranty

- Minus

- Resolution no match for all-armature in-ear designs

The low-frequency driver is tuned with three separate chambers within the earpiece to produce a flat response. Barton designed and 3D-printed earpiece prototypes not only to measure and listen to the sound, but also to craft the earpieces to be as comfortable as possible. The drivers were voiced during the design process with a KEMAR dummy-head testing system for headphones at the same National Research Council of Canada facility that Barton uses for designing PSB speakers.

The M4U 4 is light and very comfortable, and you can wear its earpieces with their cables looping back over and behind your ears, or with the cables hanging straight down. Two user-replaceable 1.2-meter-long

cables are included, one with a three-button Apple remote with a microphone for answering and making phone calls, and a "plain" cable. The M4U 4 comes with two sets of small, medium, and large silicone and Comply foam tips to ensure the best possible fit. You also get a 6.3mm adaptor plug and a zippered carry case. The M4U 4 is available in Black Diamond or Arctic White finishes; the warranty runs two years, double what you get with most in-ears.

The M4U 4 is a neutral-sounding, easy-to-like headphone. Then again, recordings all sound different. Some are bright and harsh, while some are massively compressed, and the M4U 4 let me hear the good and not-so-good sounds of my music. Fleet Foxes' glorious *Sun Giant* album with its beautifully recorded choral harmonies was a real thrill. Annie Lennox's recent *Nostalgia* album puts her big voice front and center, which is great, but the accompanying musicians' contributions are miniaturized. The M4U 4 was just telling it like it is.

I did the bulk of my listening with my iPod classic, before I stepped up to the latest version of FiiO's high-resolution X5 music player (\$350) to tap the M4U 4's full potential. Dynamics and

RATING

PSB Speakers M4U 4 Headphone

Performance ★★★★★
Build Quality ★★★★★
Comfort ★★★★★
Value ★★★★★



THE VERDICT

The PSB Speakers M4U 4 blocks a good amount of external noise, feels comfy, and sounds sweet. What's not to like?

transparency improved, a lot, so with Aphex Twin's *Drukqs* album, the seriously deep bass passages were more viscerally felt, and with Rob Wasserman's *Solo* album, his acoustic bass's dexterity and precision were no less astonishing. A hi-res FLAC of Wilco's *Yankee Hotel Foxtrot* album thrust Jeff Tweedy's vocals forward in the mix, while the band's densely textured and layered percussion focused further back in the soundstage. Compared with the Ultimate Ears UE900s in-ears, the M4U 4 came up a little short on resolution and treble clarity, but the M4U 4's bass potency leaped ahead of the UE900s'.

No doubt about it, with the PSB M4U 4, Paul Barton has done it again and made a headphone that advances the state of the art for affordable in-ear headphones. What's he gonna do next?

SPECS

Type: In-ear • **Drivers:** Balanced armature and dynamic driver (1 each per earpiece) • **Impedance:** 16 ohms • **Rated Power:** 1 mW





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Upgrade Ideas



My current 5.1 audio setup is driven by a Marantz SR7007 A/V receiver. Since I'd like to get a little more punch from it, I'm

looking at upgrading to an external five-channel amp: either an Outlaw 5000 or Marantz MM7055.

Here's my question: If I connect an external amp to my Marantz receiver, will I still be able to use its Audyssey processing, or do I lose that ability?

Garry Briand / via e-mail

Yes, you can use your receiver's Audyssey MultEQ XT processing when an external amp is connected. The Audyssey calibration/equalization results are based on measurements that your receiver's included calibration mic makes of test sounds conveyed by the system's speakers. It doesn't matter if the receiver's built-in amps or an external multichannel amp is used to produce those sounds—either way, the calibration mic will be able to make the measurements used for equalization by the receiver's Audyssey feature.

One thing you will need to do if you decide to switch to an external amp is rerun the Audyssey sequence. Both multichannel amps you're looking at have a higher per-channel power rating than your receiver's built-in amplifiers. For that reason, output levels are likely to be different with either one plugged in, which will throw off your original measurement/calibration results.

I recently read S&V's review of the Mitsubishi LT-46153 LCD HDTV. The review raved about this set, including its most notable feature, a 16-speaker soundbar. I bought this TV six years ago. After four years, the soundbar failed, and the

Can I still use my AVR's Audyssey processing system with an external amp?

set's entire circuit board had to be replaced (\$475). Now that circuit board has failed again, though for different reasons. Price to replace: \$500.

Do you have any reader feedback on the Mitsubishi LT-46153's failure rate? Replacing the circuit board yet again would bring my total expenditure up to \$2,725, an amount that would buy a nice new system. Shouldn't an LCD TV be expected to last 10 years without repairs, or is that unrealistic?

Pat Templeton / via e-mail



Before I get to your questions, it will probably be a good idea to discuss the scope and limitations of the TV reviewing process. (I was the writer who reviewed the LT-46153 for *Sound & Vision*. Guilty as charged?) When a product is submitted to *Sound & Vision*—or any other media outlet, for that matter—the average time we get to hold on to it for review ranges from 30 to 90 days. In some cases, that period gets extended, particularly if the product turns out to be a reference-grade component that we want to use as a benchmark for future comparisons.

Due to the short time reviewers get to retain products, failure rates and other long-term issues are a topic we don't get a chance to cover, let alone track. For that sort of overview, you'd be better served by checking out Internet forums such as AVS (avsforum.com).

When the LT-46153 review was published back in 2009 (Mitsubishi has since exited the consumer TV biz), high-quality powered soundbars were relatively expensive, while the wiring complexity involved in connecting an A/V receiver to a passive soundbar (which are less expensive) made it an undesirable option for smaller rooms—the type where a 46-inch HDTV like the LT-46153 would make the most sense. Viewed in this context, the Mitsubishi's decent picture quality and impressive built-in soundbar made it a compelling package. That's why I recommended it. And likely why you chose to purchase it.

Back to the matter at hand. While I don't have any reader feedback to share regarding the LT-46153's failure rate (I do know, however, that Mitsubishi TV still maintains a Web presence to service its products), it's perfectly reasonable to expect an LCD TV to last at least 10 years.

Whether your LT-46153 is a lemon is a matter I ultimately can't speak to, especially when we're talking about a complicated product like a TV with an integrated 16-speaker soundbar. But as you mull over replacing that circuit board, consider this: New 4K sets providing enhanced specs including an extended color gamut/bit-depth and High Dynamic Range are just now hitting stores. And early next year we can expect to see sources like Ultra HD Blu-ray capable of delivering content that satisfies those specs. For those reasons alone, I'd suggest that an upgrade would be the smart move here.

Comcast DVR Won't Miss Your Show

The latest addition to Comcast's X1 IP-video platform is an Auto Extend feature that adds 30-minute increments to DVR recordings so you won't miss events that run past their scheduled air times. The option works only with certain sporting events—NFL, MLB, NBA, NHL, NCAA men's football and basketball, and NASCAR—but Comcast promises to expand that. In the testing stage is another new feature called Play by Play, which jumps to highlighted sports moments, analogous to a disc player accessing chapter stops. Also being tested is Welcome Back, which offers brief updates on recent DVR recordings or trending programs. Comcast is rolling out the X1 platform at the staggering rate of 30,000 new boxes per day, now reaching about a third of its triple-play customer base.—MF



ESPN Wants to Stand Alone

ESPN is tired of being just another channel in someone else's pay-TV system. Its parent company Disney is considering going direct to consumers with a video streaming service, as HBO is already doing with HBO Now. CEO Bob Iger raised the prospect in a CNBC interview, though he added the move is at least



five years away, presumably because of existing contracts with pay-TV providers. Analysts said the service could get consumers to shell out between \$21 and \$28 a month.—MF



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Reference Tracks

MIKE METTLER

Dave Edmunds Serves Up a Ten Spot of All-Instrumental Pleasures on *Rags & Classics*



Leave it to Dave Edmunds to always want to take things a little bit left of

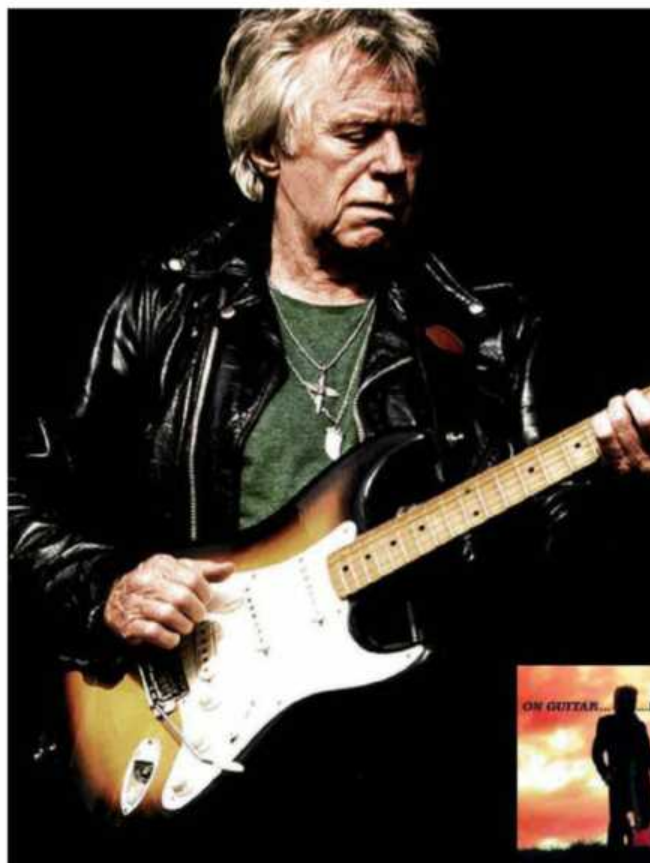
center. “I’ve never liked listening to albums, and I’ve never liked making them,” admits the Welsh-born guitarist and producer known for his modern rockabilly sensibilities (see Rockpile’s *Seconds of Pleasure* and solo hits like “Slipping Away” and “Girls Talk”). “I’m a singles guy; always have been.”

That said, Edmunds agrees he found the right album-length formula for the 15 songs he compiled for 2013’s *...Again* (RPM), but he decided to shift gears for the just-released all-instrumental *On Guitar... Dave Edmunds: Rags & Classics* (RPM). “The 10 album tracks are pretty similar to the originals, but you’re shocked when a guitar comes in instead of a vocal,” he explains. It’s a valid point, especially when you hear how Edmunds’ 1959 Fender Stratocaster takes the place of the iconic vocal and organ lines on Procul Harum’s “A Whiter Shade of Pale,” how his Taylor acoustic fuels “Classical Gas,” or how he adds an unexpected twang to Mozart’s Symphony No. 40 in G minor, Molto Allegro.

I called Edmunds, 71, across the Pond in Wales to discuss the one-man-band approach to *Rags & Classics*, his personal listening preferences, and what he thinks the two best-sounding songs of the rock era are. Subtle as a flying mallet, indeed.

MM: I find the sounds on *Rags & Classics* to be quite interesting, especially given the way you used Logic Pro 9 to record it. And it’s all total DIY from your end, right?

DE: Yeah. I put aside a room in my house to use as a studio. It has very little equipment—I’ve got a Logic Pro 9, a keyboard, my guitars, a bass, and that’s it. And



a Roland R8 drum machine, which comes in handy.

MM: As a longtime producer, your ears are attuned for a certain sound when you’re recording. What kind of sound or sounds were you going for here?

DE: Well, hmm, let’s see. I just try to get a nice drum sound, a nice bass sound, and a nice guitar sound. I don’t do a helluva lot of messing around with things, just a bit of EQ. I use the Logic Pro 9 not as most people would use a machine like this because I don’t do any sequences or loops. There’s no MIDI on there, and no quantizing. It was pretty straightforward. I use it more like an analog tape recording. I use my experience from that and use the Logic Pro 9 as a

recording device, but with all of those nice effects and everything else you can get with it that you can’t get with analog. I’ll never again use analog tape.

MM: Oh no? How come?

DE: Ummm, I’m not convinced when people say, “Oh, it sounds warmer,” or somehow it’s superior. I think it’s all down to the playback system. On a great playback system, it’s gonna sound good. And if it’s not such a great playback system, then it’s not going to sound good, regardless of the format you play it on. In an A/B comparison, I think people can fool themselves.

In the ’70s, people would be proud about having their Pioneer amp and their Tannoy speakers,



and they’d shift them around to get them in the right place in their rooms and be proud of playing this stuff on a nice turntable. It’s gone now—people play it through their television systems! There’s bass and treble, and not much middle in there. The better the recording, the worse the playback choice gets.

What I really find annoying, and a bit sad, is that as recording devices get better, the playback systems are worse. People and their kids are listening to Meghan Trainor and Beyoncé on their iPhones, and they think that’s great, or out of a laptop without using headphones or with poor-quality earbuds that keep moving or falling out.

MM: Can you tell me what songs from other artists are your personal benchmarks, in terms of production quality?

DE: For other people? Oh, you got me there. Where do I go with this? I could play safe and say “God Only Knows” [by The Beach Boys, which is covered on *Rags & Classics*]. What else

would do it for me, production-wise?

Well, “River Deep—Mountain High” [by Ike & Tina Turner, produced by Phil Spector, and released as an ill-fated single in May 1966]. Those are the two best pop records: “River Deep—

Mountain High” and “God Only Knows.” So there it is. (laughs)

An extended version of the Mettler-Edmunds *Rags & Classics* Q&A appears in *The S&V Interview* blog on soundandvision.com.

CD

LABEL: RPM

AUDIO FORMAT: 44.1-kHz/16-bit PCM Stereo

NUMBER OF TRACKS: 10

LENGTH: 37:19

PRODUCER: Dave Edmunds

ENGINEER: Dave Edmunds





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The Mystery of the Disappeared Data



When you buy a Blu-ray Disc for \$25, you expect the very best quality.

When you rent a Blu-ray for \$2, do you still expect the best? Or would the budget pricing lower your expectations? Do you simply assume that the bits comprising a rental movie are the same as the retail movie? You might be surprised to learn that not all bits are created equal. And therein lies a mystery.

It's not uncommon to have bonus materials deleted from some rental discs. That seems reasonably OK as long as the feature film is untouched. However, some rental discs have audio tracks that are degraded from the retail versions. If you read A/V forums, you'll find enthusiasts outraged to discover that a rented title occasionally has a lossless audio track (like DTS-HD Master Audio) replaced by lossy audio (like DTS 5.1). Those getting finger-pointing: rental

When you rent a Blu-ray for \$2, do you still expect the best quality?

giants Redbox and Netflix, and movie studio Lionsgate.

According to one forum post, Redbox purportedly responded to his complaint: "We're sorry that the Blu-ray you rented did not have the audio that you like. Please understand that to keep rental cost low, Redbox has made agreements with studios to provide Dolby Digital 5.1 audio on some of our Blu-ray Discs. We just ask that going forward you keep this in mind, so not all the Blu-ray Discs you rent will have the audio you are asking for."

Exactly how does inferior audio quality help keep rental costs low? Well, a movie studio might want to subtly cripple discs intended for the rental market



to protect the value of their retail discs. That makes perfect business sense and seems like a legitimate practice. In return for that advantage, the studio could sell rental versions at a lower price.

Another possibility: It's cheaper to manufacture discs with fewer data layers. The whole sirloin of a movie might need, for example, two data layers, but a more thinly sliced version might need only one. The one-time costs of rewriting the files and making a new disc master may be less than the multiplicative cost of pressing dual-layer discs instead of single-layer discs. Thus, lossless audio gets replaced by more data-efficient lossy audio. The rental company pays less for the cheaper downgraded discs.

It's hard to blame movie studios for protecting their product, and if retail sales are more profitable than rental sales, then it's simply good business to manufacture lesser discs and sell only those to rental companies. And the rental companies? They want to buy discs at the lowest possible price. But they also want Blu-ray titles to be as good as possible, at least so they can charge a premium for them over DVDs. On the other hand, if rental companies mislead consumers about content, that seems very unsportsmanlike.

And that, I think, is the heart of the problem: the possibility of false advertising. If your rental disc arrives in a generic sleeve without labeling, you might not know what you are getting. And even if the rented disc doesn't specifically state the audio format, even if there is nothing deceptive, there is an expectation that a premium-priced Blu-ray Disc will deliver premium performance. And a dumbed-down audio track doesn't do that.

The question has recently moved from the blogosphere to the courtroom. Plaintiffs in Miami have filed a lawsuit against Redbox claiming that Redbox engaged in deceptive advertising. Whatever the merits of the case, it might at least uncover what's going on here. Meanwhile, it seems that some bits are mysteriously missing. Vast conspiracy, tempest in a teapot, or simple misunderstanding? We'll find out.

It's here. The redefinition of your audio and video experience. The Emotiva XMC-1 combines precision 7.2 HD surround decoding, balanced audiophile multichannel preamplification, and full 4K video management with the power of Dirac Live™. Whether you're running the latest movies or high-definition audio, get ready for the most powerful, immersive experience you've ever had.

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NewGear

THIS MONTH'S HOT STUFF...

➔ Definitive Technology W Studio Micro Soundbar System

You won't have to worry about the W Studio blocking the infrared sensor on your TV, making it a pain to operate the TV without standing up and doing a jig. The super svelte W is 43 inches wide and just over 3 inches tall yet somehow manages to accommodate seven drivers. The system supports the Wi-Fi-based DTS Play-Fi platform for uncompressed, multiroom streaming from personal libraries and music services such as Pandora via a free iOS/Android app. **Lucky Seven:** Four 3 x 1-inch oval woofers and three 1-inch aluminum-dome tweeters driven by seven discrete channels of power are arranged in a "3.1 spatial array" said to deliver room-filling sound. Bass is offloaded to a standalone wireless subwoofer with a downfiring 8-inch driver. **Price:** \$899

Definitive Technology • (410) 363-7148 • definitivetech.com

✦ LG EF9500 HDR-Enabled 4K OLED TV

"Match made in heaven" was the phrase that immediately came to mind when LG announced the world's first high dynamic range (HDR)-capable 4K OLED TV. The combination of high-resolution (3840 x 2160) OLED with its inky blacks and HDR's superior contrast and brightness sets the stage for an absolutely stunning picture. Available in 55- and 65-inch screen sizes, EF9500 series TVs support 4K/Ultra HD (UHD) streaming from Netflix, Amazon Instant Video, and YouTube and feature an updated webOS 2.0 Smart TV system designed to make finding favorite content and switching between broadcast TV, streaming services, and connected devices "simple and fast." **Slim 'n Sexy:** Other distinguishing features include a frameless flat screen that's only a few millimeters thick and a built-in sound system designed by Harman/Kardon. **Price:** 55-inch, \$5,500; 65-inch, \$7,000

LG • (800) 243-0000 • lg.com



➔ **Parrot Zik 2.0 Bluetooth Headphone**

Find a set of wireless headphones you can live with, and you won't be going back to wired cans any time soon. The Zik 2.0 includes a free smartphone app with adaptive noise control that lets you stream music via Bluetooth (with NFC auto-connect), tweak the sound via a five-band parametric equalizer or choose one of six EQ presets, and select listening modes such as Concert Hall and Jazz Club. The lithium-ion battery is good for up to 6 hours of wireless playback with noise control on. **Invisible Touch:** A smart (and invisible) touchpanel on the ear cup puts volume, play/pause, and track up/down controls within easy reach: Press the middle to play or pause music and slide your finger vertically to adjust volume and horizontally to skip forward or back. **Price:** \$400

Parrot • (877) 972-7768 • parrot.com



➔ **Pioneer SP-BS22A-LR Atmos-Enabled Speaker**

Intrigued by Dolby Atmos surround sound but on a tight budget? Pioneer's got your back with an Atmos-enabled adaptation of its popular SP-BS22-LR bookshelf speaker, which garnered S&V Top Pick status back in 2012. For an extra 40 bucks a pair, you get a proven two-way speaker that's been reconfigured with a top-firing concentric driver combining a 4-inch woofer and 0.5-inch tweeter; the slightly angled top speaker expands the soundfield by bouncing sound off the ceiling, dramatically increasing the realism of Atmos-encoded movie soundtracks. Of course, you'll also need an Atmos-compliant receiver or surround processor. **Get 'Em While They Last:** The SP-BS22A is one of the last speakers created under the aegis of Andrew Jones, the accomplished designer who recently left the company. **Price:** \$300/pair

Pioneer • (800) 421-1404 • pioneerelectronics.com



➔ **BDI Vertica Home Theater Consoles**

The Vertica line from A/V furniture specialist BDI offers a choice of three modern home theater consoles featuring elegant louvered doors (to promote airflow around stored

components), adjustable shelving, integrated cable management, hidden wheels, and a removable back panel. **Creative Credenzas:**

The 54-inch-wide Vertica 8556 (left, \$2,320) features an open soundbar compartment and two large drawers, while the 73.5-inch-wide Vertica 8558 (right, \$2,970) has three storage drawers and two component compartments, each with two adjustable shelves. The 79-inch-wide Vertica 8559 (\$2,575) is only 22.5 inches tall and features an extra-wide center component/soundbar compartment, concealed by a sliding louvered door, and two side compartments; each compartment has a single adjustable shelf. Finish options are chocolate stained walnut or satin white with white oak.

BDI • (703) 803-6900 • bdiusa.com



2015 Holiday Gift Guide

Forget the Tie—Give the Gift of Tech ➔ By Bob Ankosko

I know you don't want to be the guy or gal who gives questionable—OK, useless—presents. Apart from the awkward head-nodding and forced smiles, the act of giving a bogus gift reflects badly on you, as in: *I ran in Target a quarter to five on Christmas Eve and grabbed the first [tie/sweater/gloves/underwear] I saw.* Don't go there! We've already screened a dozen gifts for you at prices starting as low as 30 bucks. All you have to do is find a match for that special person(s) on your list. How hard can that be?

➔ Hi-Res, High Style

If money's no object and you're looking to spoil someone special, why not give the gift of music? Having perfected the art of building world-class portable music players like the AK380, Astell & Kern developed a unique self-contained audio system that presents music in all of its full, high-res glory (don't even think about playing an MP3 on this setup). Standing just over 3 feet tall, the sleek AKT1 (\$3,700) houses six speakers—two tweeters, two midrange drivers, and two 6.5-inch woofers—in its angular (silver or black) aluminum structure. It plays 192-kHz/24-bit and DSD files and supports playback from any wired or wireless source, including Wi-Fi and Bluetooth/aptX. The system can be controlled via its 4-inch LCD touchscreen or a smartphone app. astellkern.com



➔ Simply Smashing

When I told the PR contact for England's Ruark Audio we wanted to check out a pair of MR1 Bluetooth speakers (\$500), his response was swift and very British: "Smashing!" Smashing, indeed. The gargantuan sound produced by these compact cubes will blow your mind as will their versatility and impeccable fit and finish. Hook 'em up to a PC for the ultimate desktop experience, jack in an iPod (minijack cable included), stream Brit pop from an aptX/Bluetooth-enabled smartphone or tablet, or connect them to a TV or home stereo—there's even a subwoofer output and remote control. Aficionados will appreciate Ruark's approach to speaker design: custom drivers powered by a serious Class AB amplifier instead of some tin-can digital amp. Finish options are gorgeous walnut veneer or a soft black or white lacquer. Go with the walnut. ruarkaudiousa.com





◀ Take It Anywhere

Readers of *Sound & Vision* have a duty to enlighten family and friends to the joys of good sound—especially anyone who inexplicably plays music through the god-awful “speaker” built into their phone. In other words, give the gift of a high-quality wireless speaker—but not just any speaker. Standing just over 8 inches tall (with the optional 6-hour battery pack attached to its base), the stylish Heos 1 (\$199 or \$298 with rechargeable Go Pack) is a study in versatility, supporting app-controlled playback over Wi-Fi, direct streaming via Bluetooth, and intuitive multiroom playback when part of Denon’s mix-and-match Heos system (reviewed January 2015). The sound is impressively robust, and you get onboard apps for Pandora, Spotify, Rhapsody, Tidal, and a handful of other streaming services. Available in black or white. usa.denon.com



♦ Smart Home, Smart Wallet

The first Harmony Internet-programmable remote, introduced in 2001, represented a huge breakthrough that simplified the life of home theater enthusiasts everywhere. Nearly 15 years later, Harmony remotes (produced by Logitech, which acquired the company in 2004) are still among the best. The Harmony Home Control (\$150), a scaled-down version of the Ultimate Home remote (reviewed on soundandvision.com) carries on the A/V tradition—operating up to eight devices in this case—while offering an affordable path to smart home control. Pair it with the Harmony Hub (\$100), and its sphere of influence extends to a variety of connected devices, including smart locks and thermostats, lights and cameras, and a host of wireless sensors. Our custom installation expert Darryl Wilkinson calls it an “amazingly impressive universal remote.”

myharmony.com



♦ Headphone Heaven

Audiophiles have had a long-standing love affair with the seductive sound qualities of electrostatic and planar-magnetic speakers—and headphones. Problem is, planar cans tend to be expensive power hogs, which is why more than a few ears perked up when HiFiMan introduced the HE400S (\$299) last summer. This super-comfy headphone excels at unraveling complex recordings, revealing subtle instrumental flourishes and background vocals you may have missed, making it ideal for hi-res duty. And, no, the HE400S won’t weigh down your loved one’s head like a helmet: It’s exceptionally well built yet remarkably lightweight with an adjustable headband and velour ear pads. A removable minijack cable (with phone-plug adapter) is included, but it’s only 5 feet long, so you might want to throw in an extension cable.

hifiman.com





◀ Get a Grip

You don't have to be a spaz to drop your phone. Everyone does it. Which is why the Flygrip Gravity phone grip/stand (\$30) is such a great gift. Attaching this self-adhesive-backed doodad doesn't guarantee you'll never drop your phone again, but it will make it a heck of a lot easier to hold onto, particularly when you're taking a picture or shooting video. I've had one on my Galaxy 5 for three months now and use it all the time. Flygrip is available in two sizes (to ensure a good grip) and a variety of cool designs and colors, ranging from Snake Skin to Magenta.

They even throw in a free phone case. shop.flygrip.com

➔ Wake Up, Charge Up

I know what you're thinking. An alarm clock? Really? A fate worse than underwear. But I can assure you, the brick-size iHome Kineta K2 (a.k.a. iKN105, \$100) has capabilities that go well beyond an ordinary alarm clock. In addition to obligatory dual alarms and an FM radio with six station presets, you have the option of jacking in an iPod or streaming tunes from a Bluetooth-enabled tablet or smartphone; you can even use K2 as a speakerphone, and it pairs instantly with NFC-ready devices. Sound quality is surprisingly clean and robust, meaning it'll play obnoxiously loud when extra early morning encouragement is needed. But the coolest feature is the removable USB power cell you can take with you for on-the-go charging. When the cell's depleted, stick it back in the K2 for a quick recharge.

ihomeaudio.com



◀ Music Bulb

Smartphone-wielding app-sters—college students come to mind—will welcome the utility of Pulse Solo (\$60), a smart bulb with three things going for it. 1) It replaces any incandescent bulb with an efficient, long-lasting LED light; 2) it brings app-controlled dimming capability to lamps or fixtures that are not connected to a dimmer; and 3) it doubles as a mini Bluetooth speaker. Screw the bulb into an existing lamp or light fixture and download the Sengled app, which lets you turn the light on and off and adjust its intensity by moving your finger around a ring. You can also control music volume by tapping up/down icons, but don't expect to rock out—the tiny speakers do best with low-volume background music.

sengled.com





◀ TV Time

Game of Thrones is a no-brainer for fans (and would-be fans) of this medieval fantasy sensation. The limited-edition Steelbook box sets of Season 1 and Season 2 (\$79.98 each) take binge viewing to new heights with

extensive bonus content and state-of-the-art Dolby Atmos surround, making *Thrones* the first TV show to sport an Atmos soundtrack on Blu-ray.

Millennials won't have a clue, but boomers will love this 50th Anniversary tribute to one of the most iconic TV shows of the '60s—*Lost in Space*—which chronicles the adventures of the Robinson family and Robot B-9 as they travel through space in 1997(!). All 83 episodes, which aired between 1965 and 1968, have been remastered in high definition (with DTS-HD mono sound) and are presented on 18 Blu-ray Discs (\$200).

hbo.com • blu-ray.com • Amazon.com

→ Plays to Eleven

In what may be the most creative implementation of the Bluetooth speaker, the impeccably crafted Kilburn (\$299) pays homage to the iconic Marshall stack that has defined the sound of rock guitar for half a century and counting. Get your camera ready because rockers of all stripes will get giddy at the sight—and sound—of this mini (9.5 x 5.5 x 5.5-inch) Marshall as they marvel over its vintage flip switch and precision control knobs. Pair a phone or tablet and stream any song from *Led Zeppelin II* to revel in the classic Les Paul/Marshall sound—or use its minijack to play “Black Dog” from an iPod. Kilburn's rechargeable battery is good for upwards of 20 hours—unless, of course, the volume is pinned to 11. Available in cream and black.

marshallheadphones.com



◀ Pinball Wizard, Take 2

When The Who released *Tommy* in 1969, it became an instant classic, spawning “Pinball Wizard,” “I'm Free,” and a string of other unforgettable songs. Three years later, the rock opera realized its full potential in a spectacular performance featuring the 104-piece London Symphony Orchestra, 60-voice Chambre Choir, and “guest soloists” Pete Townshend, Roger Daltry, John Entwistle, Rod Stewart, Ringo Starr, Steve Winwood, and others. Now, after more than 30 years out of print, the historic recording has been remastered (at 192/24 hi-res) and reissued on CD (\$12) and LP (\$25, as a limited-edition gray vinyl pressing). Both versions include the original libretto with a 20-page color illustration of the characters and lyrics. A must-have for Who fans or anyone who digs music of the late '60s/early '70s.

amazon.com (CD)

musicdirect.com (limited-edition vinyl)

→ Super Soundbar

I'm going to bet there's at least one person on your shopping list who hasn't gotten around to upgrading the lifeless sound that emanates from his or her TV. A pity—that is, until you rescue them with an awesome gift they didn't even know they needed. The YAS-203 soundbar (\$400) uses signal processing Yamaha has perfected over more than a decade to produce remarkably spacious sound from two speakers mounted at either end of a long, slender enclosure that's only 3 inches tall and 5 inches deep (bass is relegated to a wireless subwoofer that takes up less than a square foot of floor space). The YAS-203 is extremely easy to set up and decodes Dolby Digital and DTS movie soundtracks for an enhanced experience. It even supports Bluetooth/aptX music streaming.

usa.yamaha.com



The Cream of the Stream

By Darryl Wilkinson

Raumfeld Wireless Multiroom Audio System

PRICE \$2,944
as reviewed

IT'S MANDATORY AT THE beginning of any wireless streaming audio system review to mention Sonos. The company is a Goliath that launched the category more than a decade ago and now dominates it. The reason is simple: Sonos gear sounds good, is reliable, and is about as easy to use as it gets. That doesn't mean, of course, that

Sonos is perfection incarnate, nor is it totally without flaws. (There are chinks in every suit of armor.) But you do have to feel at least a modicum of pity for any manufacturer that decides to pick up a slingshot and take aim at the Sonos colossus.

The Road to Streaming Audio Hell

Some of those pitiable companies have names you probably know: Definitive Technology, Heos by Denon, Bose, Samsung, LG, and most recently (again, with a

second incarnation) Yamaha. There's also Bluesound, a sister company of NAD and PSB. But here's a name I'm sure you don't know: Raumfeld. The company was started in 2008 in Berlin (Germany, not Ohio...nor Wisconsin...nor...) by two audiophiles (Stephan Schulz and Michael Hirsch) who couldn't stop thinking about making digital audio sound better. A scant—yes, a scant, I say—two years later, the Berlin Acoustics Group, the folks who make Teufel loudspeakers (you probably haven't heard of them, either), acquired Raumfeld and began in-house development of a fledgling streaming audio system with a bit of advice from the Teufel speaker engineers.

As they say, the road to multiroom

AT A GLANCE

+ Plus

- Intuitive, easy-to-use app
- Classy, minimalist cosmetics
- Supports up to 192-kHz/24-bit files

— Minus

- No Bluetooth or AirPlay
- Only four currently supported online music services
- No subwoofer outputs

wireless streaming audio hell is paved with good intentions—and access to an anechoic chamber. Actually, no one says that. The point is that it's not easy designing a wireless multiroom system from scratch. I need to stress the multiroom aspect here, because everyone and their second cousin make a wireless speaker (or two or three). Most of them utilize Bluetooth (and many sound like crap). A few have AirPlay built in, a superior Wi-Fi-based protocol (and mostly sound pretty good, or at least, better). So the wireless-ness is relatively easy. The difficult part is streaming to multiple speakers, simultaneously or independently (AirPlay, for example, doesn't do independent multiroom playback), and, most important, coming up with a way to operate the system that doesn't require hours of waiting on the phone for someone in support to tell you to reboot the speaker.



● A central hub isn't required, so you can start a Raumfeld system with any model, including the Stereo M bookshelf speaker.

THE VERDICT

The Raumfeld system's excellent-sounding active/passive speakers, ability to handle hi-res audio, and very intuitive app make it a top-notch competitor and a standout in a category that's spawning a plethora of me-too Sonos imitators.

AUDIO SYSTEM

RAUMFELD WIRELESS MULTIROOM AUDIO SYSTEM

PRICE: \$2,944 (One S, \$249 ea; Stereo Cubes, \$699 pr; Stereo M, \$1,399 pr; **Connector**, \$299; **Expand**, \$49)
Raumfeld • raumfeld.com

Share and Share Alike

Thousands of years of recorded human history have shown that there are only two basic types of hardware that make up a wireless multiroom audio system: 1) speaker systems—nearly always the all-in-one kind—with the amplification and streaming circuitry built in, and 2) amps, preamps, or (more lately) AVRs with the streaming hardware on board. The Raumfeld folks haven't reinvented the streaming wheel, but they have succeeded in putting their own spin on it. Their line will be coming to the U.S. in the near future, with a pre-sale said to be set for mid November on Raumfeld.com and full availability on Amazon by February 1. This initial Raumfeld U.S. offering includes the system we've gathered here: an all-in-one speaker system (One S, \$249), two active speaker pairs (Stereo Cubes, \$699/pair; and Stereo M, \$1,399/pair), and a streaming preamp that can be used to turn an existing sound system into an additional listening zone (Connector, \$299). There's also the optional Raumfeld Expand (\$49), which can be used as a dedicated wireless access point for the Raumfeld gear. Not reviewed here, but expected to be available are the One M all-in-one speaker, the Stereo L tower speakers, the One Soundbar and matching subwoofer, and the Sounddeck soundbase.

As with most streaming audio systems nowadays, there's no required central hub or gateway, so you can start with a single component and add to the system over time. The Raumfeld system architecture is capable of distributing up to 10 independent audio streams simultaneously, assuming your Wi-Fi network has the capacity.

There are more similarities than differences among the various

Raumfeld audio components. They all, for example, include the following: built-in 802.11b/g/n (WPA, WPA2 encryption); 10/100-megabit-per-second Ethernet connectivity; a USB 2.0 port; two insanely bright, white LED status lights on the front panel; an on/off switch (with auto on/off and manual settings); and a volume control. The One S and Stereo M speaker systems have four user-programmable preset buttons for immediate access to favorite playlists or streaming services. Unfortunately, you can't dim the status LEDs on any of the components, which leaves you the choice of either turning off the lights completely or suffering an onslaught of retina-burning photon torpedoes any time you glance at the component. (Heos solved a similar problem by including dimming capability in a software update.) Other than during the initial configuration or startup of a component, the status lights are pretty worthless, anyway. It would be helpful if one blinked to indicate when the device's volume is muted, to distinguish from the status of simply not playing.

With the exception of the preamp-only Connector and the Expand access point, the Raumfeld products are all built like brick—well, you know. I may be exaggerating a bit because they're not made of bricks, nor do they contain toilet facilities, but they certainly follow the stereotype of the German propensity for solid engineering. Every component—except, for some reason, the tabletop-style One S—includes a pair of RCA analog inputs for listening to and/or streaming a local source to other zones (including to the One S). These might include, for example, a disc player, cable box, or even a turntable (with an assist from a phono preamp). All support



playback of MP3, WMA, WAV, AAC, FLAC, and Apple Lossless (ALAC) files stored on NAS drives, computers, and smartphones and tablets, and they can handle up to 192-kilohertz/24-bit sample rates, making them one of the only Hi-Res Audio-compatible wireless multiroom audio systems out there (another being Bluesound). Raumfeld also supports gapless playback. None of the models includes Bluetooth, AirPlay, or Play-Fi. In fact, Raumfeld takes pains to say that streaming audio in a lossless format (such as FLAC) over Wi-Fi offers better fidelity than AirPlay and—especially—Bluetooth.

At the moment, Raumfeld's biggest weakness is the small number of supported online streaming audio services, which are currently limited in the U.S. to Spotify, Tidal, and Tuneln, with Rhapsody expected to be live by launch time. At latest count, Bluesound supports more than 10 services. Denon's Heos offers at least nine. Then there's the big daddy, Sonos, with support for a whopping 39 online audio services. Access to streaming services, however, is more of a legal issue than a technical one, and Raumfeld is likely to add more choices for the U.S. as time goes on. Then, there's also the argument made by most of Sonos' competitors: How many streaming

services do you really need or use? If a handful of the most popular services are offered, the theory goes, most users will be satisfied. But even by that standard, with stalwarts like Pandora still missing, Raumfeld's still got a way to go on this front.

At this point, you should be wondering what makes the components different? Good question. Let me tell you.

One S

Raumfeld's One S is quite possibly the mightiest mini speaker you'll ever come across. Somehow, the Raumfeld folks pack a forward-facing coaxial tweeter (1 inch)/woofer (3.9 inches) array, a pair of 3-inch side-firing passive radiators, 40 watts of Class D amplification, and both Wi-Fi and Ethernet connectivity, plus a top-hat-wearing, cane-tapping, singing and dancing frog, all together in a 7 x 5 x 4-inch box. (Just kidding about the frog, by the way, although that would be pretty damn cool.) A black fabric grille wraps the front and sides, while the top and back surfaces of the MDF cabinet are finished in a matte white. A thin rubber pad on the bottom keeps the One S from sliding around. The power button and those blinding status LEDs are set within an aluminum nameplate that runs across the bottom front of the One S.

The volume +/- and four favorites buttons on the top of the One S are



● The Stereo Cubes' electronics are located inside the "master" speaker.

● The matte white One S is wrapped with a black fabric grille cloth.

● The Expand keeps the system's data traffic on its own highway.

● The Connector preamp has a compact profile.

TEST REPORT

RATING

Raumfeld Stereo Cubes Speaker

Performance ★★★★★

Build Quality ★★★★★

Value ★★★★★

SPECS

Stereo Cubes: 5.1 in fiberglass cone woofer (2), 1.1 in fabric dome tweeter (2); 160 watts total, Class D; 7.7 x 7.7 x 7.7 in (WxHxD); 8.8 lb; analog stereo RCA input, USB 2.0, LAN (10/100-Mbit/s Ethernet), W-LAN (802.11b/g/n)

● **The Stereo Cubes are biamplified, each with a pair of 40-watt Class D amps.**



frequencies, but the One S is very smooth; you could almost call it “reserved” or, maybe, “deliberate” in its sonic character. Don’t look for

stereo imaging, though, because a solo One S is strictly a mono speaker without any spatial processing to fool your ears into hearing a faux stereo image. You can, however, configure two One S speakers to work as a stereo pair.

Stereo Cubes

Sometimes—as a result of sheer genius, dogged hard work, or plain dumb luck—a company’s design and engineering teams come up with a finished product in which the cosmetics, components, features, and form factor all fit together so well, it’s impossible not to fall in love with it. In my opinion, one of those rare products is the Raumfeld Stereo Cubes. The system consists of two 8 x 8 x 8-inch (approximately) matte-white cubes with black grilles covering most of the front of the cabinets. There’s an indentation in the grille that circles around a 3-inch hole, through which the domed grille of the 1.1-inch tweeter emerges. A 5.1-inch midbass driver is mounted coaxially behind the tweeter, and there are two forward-firing ports. The speakers are biamped, with each driver having its own 40-watt Class D amp.

The electronics—including the amps for both speakers—are inside the “active” or “master” speaker, and each cube has a 6.3mm jack for connecting the two speakers using the supplied 3.3-foot white cord with phone plugs on the ends, the same you’d expect to find on a headphone cable. On the front of the master

speaker are those torturous LED status lights (have I mentioned how bright these are?), an on/off button, and a rocker bar for adjusting the volume. Two small things keep me from embarrassingly falling 110-percent head-over-heels in love with the Stereo Cubes: 1) no preset favorites buttons, and 2) the lack of a subwoofer output. (The LEDs go without saying.)

Admittedly, most people would never think of adding a subwoofer to the Stereo Cubes since, as with the One S, the bass is amazingly good for the size of the speaker. (Raumfeld specs the Stereo Cubes down to 62 Hz.) But that doesn’t mean a subwoofer wouldn’t give them a healthy added kick in the bottom end and perhaps make them even more suitable for use as sound reinforcement for a TV (using the analog input). Unfortunately, there is no subwoofer out, only the speaker-level output on the active speaker feeding the passive mate. Still, the overall sound quality of the Stereo Cubes is phenomenal for a streaming audio speaker of that size, form factor, and price. The bass response is tight—with more punch than that from the One S—while the mid/tweeter combo is subtle and delicate, with slightly more emphasis than the One S in the vocal range.

Stereo M

At twice the height and another 3 inches deeper than the Stereo Cubes, the Stereo M powered bookshelf speakers are only the second largest in the Raumfeld line



(the full-size Stereo T towers being the biggest). Still, these are in no way going to neatly slide in amongst your personal library of hardbound and paperback books (if you still have any). Behind the nearly full-length, black front grille is a coaxially mounted tweeter (1 inch)/midrange (4.3 inches) assembly placed above a 5.5-inch woofer. On the front of the speaker along the bottom is an aluminum strip similar to that on the Stereo Cubes, but this time there are four favorites buttons, and instead of a +/- rocker switch for the volume, the Stereo M has a circular volume knob, which I actually preferred to the rocker on the Cubes. The 140-watt x 2 (RMS) amp in the active speaker is connected to its passive mate via standard speaker wire and traditional speaker binding posts. A narrow, horizontal slot on the back of each speaker serves as the port.

I’ll admit that the \$1,399 price tag on the Stereo M system was a bit off-putting at first. Why not, for instance, use Raumfeld’s \$299 Connector with a \$500 AVR and a pair of \$600 monitor speakers for the

RATING

Raumfeld One S Speaker

Performance ★★★★★

Build Quality ★★★★★

Value ★★★★★



● **The moisture-resistant One S can be used in a bathroom.**

● **A rubber pad on the bottom of the cabinet prevents the One S from sliding.**

SPECS

One S: 3.9 in polypropylene cone woofer (1), 3 in passive radiator (2), 1 in aluminum dome tweeter (1); 40 watts total, Class D; 7.1 x 5.1 x 4.3 in (WxHxD), 3.1 lb; USB 2.0, LAN (10/100-Mbit/s Ethernet), W-LAN (802.11b/g/n)



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TEST REPORT

● The Stereo M features four programmable preset buttons.

RATING

Raumfeld Stereo M Speaker
 Performance ★★★★★
 Build Quality ★★★★★
 Value ★★★★★

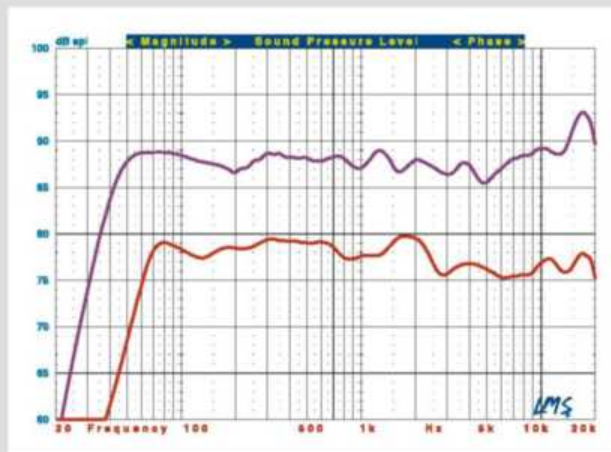


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Test Bench

Raumfeld Stereo M and Stereo Cube Sound Systems



The left channel of the Stereo M and Stereo Cube were each measured quasi-anechoically (close-miking of all woofers) via their wired analog inputs, from a distance of 1 meter, grilles on.

STEREO M (purple) +1.20/−2.51 dB, 200 Hz to 10 kHz; −3 dB @ 42 Hz, −6 dB @ 38 Hz.

STEREO CUBE (red) +1.40/−3.12 dB, 200 Hz to 10 kHz; −3 dB @ 62 Hz, −6 dB @ 56 Hz.—MJP

SPECS

Stereo M: 5.5 in polypropylene cone woofer (2), 4.3 in cellulose cone midrange (2), 1 in fabric dome tweeter (2); 280 watts total, Class D; 8.3 x 16.5 x 10.8 in (WxHxD); 25.4 lb; analog stereo RCA input, USB 2.0, LAN (10/100-Mbit/s Ethernet), W-LAN (802.11b/g/n)

same total cost? You'd gain a lot more flexibility with the extra inputs, a subwoofer output (yeah!), and your choice of speakers. But that would come at the high cost of losing the simplicity that is such a huge advantage of a wireless multiroom audio system. And off-putting soon changed to on-putting when I began listening to the Stereo Ms. The bass

seem small and puny in comparison. (At twice the price, the Stereo Ms damn well should have, too.) In fact, the Stereo Ms are the first active streaming speaker system that makes it worth spending the 20 bucks or so for a subscription to a higher-resolution online service, such as Tidal, which is the only CD-quality provider currently supported by Raumfeld in the U.S.

Connector

Compared with other companies' similar products, Raumfeld's streaming preamp, the Connector, is surprisingly tiny. At 6.8 x 11 x 5 inches and weighing only 10 ounces, the Connector is significantly smaller and lighter than the Sonos Connect and the Heos Link, both of which perform the same basic function within each one's ecosystem. On the other hand, the Raumfeld Connector is only \$299, which is \$50 less than either of the other two. In addition to the features found on the other Raumfeld components, the Connector has outputs for digital audio (optical) and

variable analog audio (RCA). Perhaps because the Connector is designed to be stashed away in an equipment cabinet with an amp or AVR—or connected to a pair of active desktop speakers—there are no favorites buttons or a volume control on the device.

Expand

Raumfeld's Expand is a preconfigured wireless Wi-Fi access point that provides potentially better Wi-Fi system performance by segregating the Raumfeld data traffic to its own password-protected wireless highway. The Expand also makes the initial configuration of the system a bit easier than connecting the components to your existing Wi-Fi router because the password for the Raumfeld network is already entered into each device. My house is a wicked beast when it comes to

wireless signals—Wi-Fi should really be called Nowhere-Fi in my home—and the Expand wasn't up to the challenge in terms of providing a strong enough signal in the outer rooms. I ended up relying on my main router, an Asus RT-AC68U, instead.

As with any Wi-Fi-based wireless audio system, a strong Wi-Fi signal is an absolute necessity for the Raumfeld system to work consistently. You can check the Wi-Fi signal strength for each component using the Raumfeld app, and I noticed that the signal needed to be at 50 percent or better for consistent performance. Otherwise, songs would play for a couple of seconds before the speaker would skip to the next song—and again and again. I solved the problem by using the speaker's

response was absolutely stunning, while the midrange and treble were both delicate and strong, which was especially noticeable on an a cappella track like "Interlude 1" from alt-J's *An Awesome Wave*. As much as I loved the Stereo Cubes, the Stereo Ms made the little cube speakers

Raumfeld nailed all the basics in their new system.



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TEST REPORT

● **The Expand is a preconfigured wireless Wi-Fi access point.**



Ethernet connection, but moving (or adding) the access point closer would have worked, too. An

interesting thing happened when I used a combination of Wi-Fi and Ethernet-connected Raumfeld components. In general, when I played the same audio signal through multiple speakers as a group, the timing of playback was perfect in all the rooms. The only exception occurred when I was playing music on an Ethernet-connected speaker and then tried to group a wireless speaker later on. There was an obvious delay in the wireless speaker's audio. Fortunately, briefly pausing the music and then starting play again brought the audio back in sync. This might be something Raumfeld can address in a future firmware update.

Spotify Disconnect

No matter how great a wireless multiroom system looks or sounds, the app that's used for setting up and operating the system day to day is the make-or-break part—and a stellar, easy-to-use app has always been one of Sonos' greatest claims to fame. Sonos is also unusual in that it offers a free PC/Mac desktop application, which makes it incredibly easy to add online services from the myriad available choices and to create playlists. (Bluesound now has desktop controllers for Windows and OS X, too.) My past encounters with new apps in general had me expecting an unfriendly, rigid, and regimented user experience with glitches galore (Ian Fleming rejected "Glitches Galore" as the Bond Girl's name in *Goldfinger* because it wasn't sexy

RATING

Raumfeld Expand Hub

Performance ★★★★★
Build Quality ★★★★★
Value ★★★★★



enough). This experience would lead me to abandon all hope and crawl back to the warm and cozy embrace of the Sonos app.

In reality, I found Raumfeld's various app versions to be wonderfully straightforward and blissfully intuitive to use. There are both iPhone and iPad iOS apps in addition to Android phone and tablet versions, and they all function basically the same way, with only minor changes to account for different screen sizes. There are no Apple watchOS or Android Wear apps, yet. (Nor is there an app for my smart timepiece of choice, the Pebble Watch.) There are also no desktop apps for PC or Mac.

On phones, the main menu is reached by tapping on the Home icon. On tablets, the main menu choices are displayed in a bar across the top of the screen. The app offers three additional screens, which are self-explanatory titled "Last Played," "Favorites," and "Personal Trends." Tapping on the Volume or Zone section opens panel overlays with that functionality's available choices, such as volume controls for individual zones or adding/removing or changing zones. Pressing on the artwork for the currently playing audio creates an overlay with information about the source, including bit rate, codec, and where the audio is streaming from (a particular NAS drive on your network, for example). Room names are customizable and can be color-coded so they can be distinguished easily from one another without requiring you to strain to read the tiny text on small smartphone screens.

On the downside, there is no way to directly mute a zone or zones. Instead, you have to inconveniently open the volume panel to access

SPECS

Connector: Analog audio (RCA) in, analog audio (RCA) out, Optical audio out, USB 2.0, LAN (10/100-Mbit/s Ethernet), W-LAN (802.11b/g/n); 6.8 x 1.1 x 5 in (WxHxD); 0.64 lb • **Expand:** USB 2.0, LAN (10/100-Mbit/s Ethernet), W-LAN (802.11b/g/n); Tuneln (free account); Spotify (premium account, Spotify Connect); Tidal (paid account)

that feature. (As noted earlier, there's also no indication via the status lights whether a component is actively playing but muted or is simply in standby mode.)

The Raumfeld app—as do a lot of other similar apps—incorporates Spotify Connect, which requires a premium Spotify subscription. I'm not a big fan of the cumbersome way Spotify Connect works. When you select Spotify in the Raumfeld app, for example, the Spotify app is automatically opened, allowing you to select what you want to listen to. Then you have to press the Spotify Connect icon to choose which one—and only one—of the available Raumfeld and other devices should play the Spotify audio. After that's done, you can then reopen the Raumfeld app and use it for basic control of the Spotify stream.

In addition to the awkwardness of it all, the fact that Spotify Connect typically limits playback to one device is asinine in my view. I can understand Spotify not allowing multiple independent streams with one subscription, but any wireless multiroom system is just that—a system. You ought to be able to group any or all of the zones together for wholehouse playback. Sonos, on the other hand, seamlessly integrates Spotify streaming into its own app, and it allows for a single Spotify

stream to be simultaneously distributed to multiple zones.

Raumfeld told us at press time that they're actually implementing this capability with Spotify and hope to have it ready for the system's official launch, though it was not operational during my test. In any case, Tidal and Tuneln are fully integrated into the Raumfeld app. Tuneln, by the way, is pre-activated in the app, so you'll have to add your favorites even if you already have a Tuneln account.

Conclusion

As I mentioned early on, Raumfeld hasn't reinvented the wireless multiroom audio system wheel, but they have put a slightly different spin on it—and I like that spin a lot. In the case of the Stereo Cubes, I like it probably more than I should. Raumfeld nailed all the basics in their new system, and the (for now) unique use of active/passive speaker pairs rather than larger and larger all-in-one designs is exactly what a system aimed at streaming high-resolution audio should incorporate. Granted, the Bauhaus-inspired cosmetics may not appeal to everyone. That's always the trade-off you make when you don't stick with common-denominator, bland industrial design. The incredible sound quality of the Raumfeld components, on the other hand, should have universal appeal. Raumfeld needs to continue adding the most desirable online streaming services if they want to be a serious player in this product category, but they are without a doubt headed in the right direction. ♦

RATING

Raumfeld Connector Preamp

Performance ★★★★★
Build Quality ★★★★★
Value ★★★★★

SPECS

Supported Audio Formats: MP3, WAV, FLAC, Ogg Vorbis, ASF, WMA, M4A containing AAC or Apple Lossless • **Supported Sampling Rates:** All, including variable bit rates • **Compatible Playlist Formats:** WPL, M3U, PLS, iTunes playlists



● **The Connector streaming preamp is a petite 6.8 x 1.1 x 5 inches and only 10 ounces.**



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Prime View

By Rob Sabin

LG 65UF9500 LCD Ultra HDTV

PRICE \$2,800

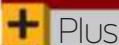
LG ELECTRONICS HAS

impressed enthusiasts with stunning (and mostly expensive) OLED displays, but the company competes aggressively in traditional LED-driven LCD flat panels, too. The 65UF9500 reviewed here is a 65-inch Ultra HD model near the top of that line, and one of two models designated as Prime Ultra HDTVs (the other being a 79-inch version priced at \$7,500). The Prime feature package includes, among other things, a wide color gamut option, enhanced brightness for highlights, and LG's webOS 2.0 smart TV platform. Of course, it can't boast the deep blacks and infinite contrast of LG's OLEDs. That said, does it deserve a space among today's top "regular" TVs? Let's take a closer look.

Design on a...Quarter

LG and competitor Samsung have taken the lead in pushing flat-panel design, and not just with curved screens. Most TVs from other manufacturers now look dated or downright pedestrian, but the 65UF9500 suffers from no such indignity. The set looks elegant from the front, with a thin mirror-finish bezel that is only slightly wider at the bottom, where a defeatable standby light is cradled by a sculpted notch below the LG logo. The pedestal's wedge profile rises front to back and

AT A GLANCE



- Accurate out-of-box color
- Superb webOS 2.0 smart interface
- Solid value in a 65-inch set



- Moderate black levels and contrast
- No future-proofing for enhanced UHD content
- 3D crosstalk

lifts the set a couple of inches off its base (you'll need a resting surface at least 46 inches wide). Behind the TV, the pedestal's convex back edge conforms beautifully to the concave curve visible up front. There's also a striking all-white backside that is the antithesis of the industrial-looking, "nobody will see it anyway" approach taken with most HDTVs. And this is among the thinnest display panels I've seen, short of the OLEDs. From front bezel to back edge, it's barely $\frac{3}{8}$ inch deep, and even where it's broadened by the jackpack and circuitry, the TV specs in at just 1.9 inches without the stand. The screen is so thin that it required careful handling during setup to avoid flexing the panel.

The LCD panel is of the IPS (in-plane switching) variety, which sets it apart from most of today's LCDs. The chief benefit of an IPS panel is an extremely wide viewing angle. Most other LCD sets sold today noticeably lose contrast or shift colors when you move to a seat that, sometimes, can be as little as 10 or 15 degrees off center at a normal viewing distance. But the 65UF9500's flat (non-curved) IPS screen showed no off-axis image shift at all from my seating

distance 9 feet away, or even up close. However, IPS panels are known to sacrifice some native black level to achieve this benefit, a subject I'll address later.

Future-proofing of UHD sets is a consideration for any purchase today. As our video technical editor Tom Norton is fond of correctly pointing out, again and again, there is much more to the Ultra HD standard than just 4K image resolution. Beginning probably with the launch of UHD Blu-ray in late 2015 or early 2016, we're going to start seeing content encoded with a wide color gamut that goes beyond the limits of today's Rec. 709 standard. In addition, high dynamic range (HDR) metadata will allow properly equipped TVs to deliver noticeably brighter and more realistic highlights than are typically achieved today.

LG isn't claiming this type of future-readiness for the Prime series, though it includes similar highlight-boosting and gamut-widening technology that can be noticeable with today's Rec. 709 content, and it offers both the HDMI 2.0 ports and HDCP 2.2 copyright management to make it compatible with UHD Blu-ray. LG's ColorPrime Nano Spectrum feature, when activated, is said to deliver 122 percent of Rec. 709 color, with much of that extension visible in the reds. That's also 97 percent of the so-called P3 gamut that is used for digital cinema and is said to be the target now for enhanced UHD content for home viewing, though again, LG is not claiming the UF9500 will now or ever recognize a P3 encoded signal and carry that information to the screen. Meanwhile, the set does support Ultra HD at up to 60 hertz in 4:2:0/10-bit color, but switching on the HDMI Ultra HD Deep Color function allows it to support 4:2:2 and 4:4:4 at 8-bit depth.

Another LG feature, Ultra Luminance, uses a combination of local-dimming pixel and backlight management to boost highlight

RATING

LG 65UF9500 LCD Ultra HDTV
 2D Performance ★★★★★
 3D Performance ★★★★★
 Features ★★★★★
 Ergonomics ★★★★★
 Value ★★★★★

luminance a claimed 10 to 30 percent. Note, however, that the 65UF9500's LED Plus backlight is edge lit, which limits how effectively it can goose individual elements in the image without affecting the area around them. A true HDR implementation would be best executed with a full-array local-dimming backlight with many zones, or, ideally, a fast-acting self-emissive display technology like OLED. The latter is where LG will be driving its HDR stake in the market.

This was my first extended go-round with LG's webOS 2.0 smart TV platform and the latest generation of their gyroscopic Magic Remote. After I spent a bit of time getting acclimated to them, both proved engaging and effective. The Magic Remote had a certain amount of annoying pointer drift, but it was easily corrected (at least for a while) with a quick left/right shake of the remote. I found the set's graphic interface attractive and intuitive. The built-in off-air program guide and the ease of navigation for my scanned broadcast channels were outstanding, and the



● At its thinnest, the LG's panel measures just $\frac{3}{8}$ inch deep from front bezel to back edge.



THE VERDICT

LG's 65-inch Prime Series looks great with most content while offering sexy design and superb ease of use at an attractive price.

HDTV

LG 65UF9500 LCD ULTRA HDTV

PRICE: \$2,800 (2 pair 3D glasses included)

LG Electronics • LG.com

combination of the floating Magic Remote pointer and accurate voice-command search on the remote made the integrated Web browser surprisingly functional.

Hitting the smart TV Home button brings up the horizontally scrolling tiles for the webOS 2.0 navigator, which allows access to favorite apps and the LG Content Store, some utility apps like a scheduler, and all the set's inputs. Netflix, Amazon, Vudu, Hulu Plus, YouTube, and Spotify were preloaded, but others were available in the store. The set includes onboard HEVC and VP9 decoding for streaming content from 4K sources like Netflix and YouTube.

The 65UF9500 has a native 120-Hz panel and delivers an effective refresh rate of 240 Hz when you engage the TruMotion 240 feature. It offers several settings that include one called Clear Plus, which seems to use black-frame insertion to reduce blur without interpolation (though it dims the image), and a User setting with separate sliders for De-Judder and De-Blur. Turning down De-Blur could

improve motion while minimizing soap-opera effect, but there were no settings besides Off that eliminated it completely, so that's what I used.

The 65UF9500's sound system is branded by Harman/Kardon and sounded just fine, though only about as dynamic as I've heard from today's typical flat panels. There are onboard Dolby Digital and DTS digital audio decoders; each seemed to recognize the multichannel bitstream in its format when I presented it to the TV's HDMI input via my Oppo Blu-ray player, and each decoder played the sound in stereo on the set's internal stereo speakers. But the optical audio output that some might use to feed a soundbar never delivered anything but two-channel PCM to my surround processor, even though I set the output to its Bitstream setting in the menu. Dolby Digital 5.1 bitstreams captured over the air through the set's tuner did pass properly, though. (To be fair, we've seen some odd interactions lately between the late-generation Oppo players and TVs that claimed the ability to pass a multichannel

bitstream; for example, the Vizio E Series also reviewed in this issue passed 5.1 bitstreams presented by an Xbox One but not from an Oppo. I was unable to retest the LG with a different brand's player before our print deadline, however.)

Eyes on the Prize

Among the LG's picture presets are two ISF Expert modes, both of which measured fairly well out of the box. I calibrated Expert 1, which required some tuning to bring excessive blue and suppressed green grayscale levels in balance; still, since those levels were close enough to start with, the changes weren't really visible. The red, green, and blue color points defining the Rec. 709 gamut were also off a bit, but close, and when the set's CMS controls proved less than fully effective at dialing them in, I just reset to the default and lived happily with it. There are four gamma preset options, including one for the new BT. 1886 spec; I settled on 2.2, which measured close to its marking after calibration (2.24) and looked best

with the widest range of material.

With most content, the LG looked really stunning. I watched a lot of casual TV captured through the set's antenna input and built-in tuner. From my 9-foot viewing distance, I found that 1080i broadcasts were very sharp and displayed natural, accurate color when scaled up to the 2160 x 3840-pixel screen. On the other hand, 720p broadcasts (think Fox, ABC) could sometimes look a touch softer, depending on the show—though not always, and much less so beyond about 12 feet.

In more critical 1080p Blu-ray viewing, I was consistently pleased. *Draft Day*, an Ivan Reitman drama that follows an NFL general manager as he ticks down the hours preceding the annual player draft, was an overlooked sleeper last year in more ways than one. Put aside for a moment the unprecedented full cooperation of the NFL that resulted in a (so it's said) realistic and entertaining look at a side of the sport that we never see. Put aside, too, the wonderful cast and the suspenseful, clock-driven story. Beyond all that, this movie just *looks* marvelous. And the solid production values benefit from an excellent Blu-ray transfer, which provides beautiful, well-lit interior and exterior shots that include subtly different fleshtones, natural-wood and green-field surfaces, and recognizable team colors in the clothing and décor. It's great fodder for checking color accuracy, detail, and contrast in scenes of middle-to-high average brightness.

In the opening scene, Cleveland Browns GM Sonny Weaver (Kevin Costner) dresses in the morning in white-shirt business attire and then stands beside a white Camaro being driven off by his girlfriend/co-worker Ali (Jennifer Garner). I was struck by the lack of any tint toward blue or red in both his shirt and the car's body—a good sign that the set was well dialed in to the neutral D65 white point and held there at different brightness levels. Later on, in the many close-ups of Sonny's and Ali's faces as they

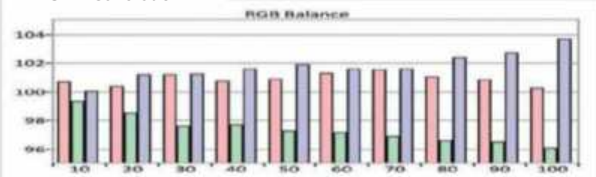


● An elegant mirror-finish bezel frames the 65-inch screen.

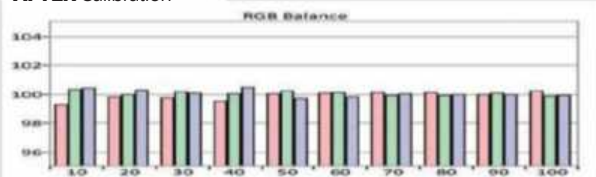
Test Bench

LG 65UF9500 LCD Ultra HDTV

BEFORE Calibration



AFTER Calibration



MEASUREMENTS were taken with a DVDO AVLab TPG 4K generator, AVFoundry VideoForge generator, X-Rite i1Pro2 Enhanced spectroradiometer, and Klein K10-A colorimeter, together with SpectraCal CalMAN 5 calibration software.

FULL-ON/FULL-OFF Contrast Ratio: 17,500:1

PRE-CALIBRATION measurements were of the ISF Expert 1 preset with default settings. Post-calibration, with the LED Local Dimming set to High, black level measured 0.0026 foot-lamberts and peak brightness measured 44.6 ft-L, for a contrast ratio of 17,161:1. (The LG's local dimming scheme takes the LED backlight to full off [infinite contrast] when presented with a 100% black test pattern, but there's a delay of several seconds before it begins to react, which allowed for a reliable measurement.)

AVERAGE Delta E for pre-cal grayscale was 3.10 overall, but the numbers grew progressively worse as brightness increased, with everything above 50 IRE (50% brightness) hitting higher than that average. Calibration with the set's 20-point white balance controls improved this to a spot-on 0.53, with the worst offender being the 60-IRE window at 1.4. (Delta E is a figure of merit that indicates how closely a display adheres to the Rec. 709 HD color standard. Levels below 3 are considered visibly indistinguishable from perfect.)

DELTA E for pre-cal color gamut in the Rec. 709 Standard setting averaged 2.08, with errors well below visibly distinguishable levels. Calibration with the CMS was able to bring this in a bit numerically, but it resulted in overdriving red to where artifacts became visible, and I opted instead to use the default settings.

PRE-CALIBRATION gamma averaged 2.17 with the 2.2 preset engaged. Calibration resulted in an average gamma of 2.24 on the same preset.

VIEWING angle was among the best I've seen for an LCD, due to use of an IPS (in-plane switching) panel type. There was no fading of contrast or color-shifting visible at virtually any position in my room, short of standing in line with and alongside the screen. Some streaking or blotchiness of the backlight was occasionally visible on dark material or in letterbox bars, depending on the content of the scene and the proximity of bright objects to the bars. And a noticeable halo was visible around the screensaver on my Oppo Blu-ray player, a ping-ponging white Oppo logo that bounces around a black background. To be fair, this is an LED backlight torture test, and most sets will show some haloing around a bright object such as this one; however, emissive display technologies like plasma and OLED show virtually none, and the best LCD sets we've seen do a better job, though at higher cost.

THE 65UF9500 passed our processing tests except for the chroma resolution test using 1080i and 1080p signals; it had no problems when presented with the same disc-based test pattern already scaled to 4K by my Oppo player. This is a fairly common fail and was never visible in any program material.—RS

SPECS

Dimensions (WxHxD, inches): 57.3 x 33.3 x 1.9 (without stand); 57.3 x 35.3 x 9.8 (with stand) • **Weight (Pounds):** 56.2 (without stand); 65.2 (with stand) • **3D Glasses:** Passive, 2 pair included, extras \$29.99 for 4 • **Inputs:** HDMI 2.0 with HDCP 2.2, 4K/60 Hz compliant (4, 1 with Audio Return Channel, 1 with MHL), component video (1), composite video and stereo audio (1), RF antenna (1) • **Outputs:** Digital audio optical (1), headphone (1) • **Other:** Ethernet (1), USB (3; 1 x 3.0, 2 x 2.0)

● **The LG's HDMI 2.0 ports and HDCP 2.2 copyright management mean the set will be compatible with UHD Blu-ray.**

intimately discuss the day's events in various locations (and lighting) around the Browns' home office, it remained easy to discern the difference between Costner's tanned, ruddy complexion and Garner's fairer, smoother skin. Ditto among the wide variety of flesh tones offered by the rest of the team's staff, including that of the head coach, played by a pale-skinned Denis Leary.

In another scene, we get a long look at a row of natural oak cubbies in the Browns' locker room, each garnished with a hanging orange helmet on a hook—not orange-red, as some sets might push it, but true orange. Likewise, shots taken in the Seattle Seahawks facilities reproduced the familiar logo treatment of navy blue, fluorescent green, and gray. And the neon façade of Radio City Music Hall, the site of the NFL Draft and a building I've walked by literally hundreds of times during both day and night, also looked true.

Draft Day further proved good for testing the LG's Wide color gamut setting. We recommend watching content in its native gamut, which means Rec. 709 today, lest the set's derived "upmix" turn things cartoonish and inaccurate. But on a few scenes that involved

reproduction of red, I got a little taste of what an expanded gamut might look like when we get real P3 content and TVs that can properly recognize it. In one of those scenes, Sonny calls the coach of the University of Wisconsin football team and catches him on the practice field, donning his red team cap. I hadn't realized this red was leaning too heavily toward orange until I flipped on the Wide gamut option, which dramatically shifted it to a deeper and clearly more natural red that I verified later (as best I could via Web images on my computer) as probably being the more accurate. However, when I returned to the locker room scene mentioned earlier, the Wide gamut setting pushed the Browns' helmets away from their natural orange and into red territory, and it turned a previously readable red neon Exit sign in the background into a glowing red spotlight. I ultimately left gamut at its Standard setting, but I'm juiced now to see what happens when we get UHD content that can tell our displays exactly where and when to use these expanded color capabilities.

The calibrated set also displayed what I'd call good highlight brightness until I started playing with the Dynamic Contrast settings, which seemed to make the Ultra Luminance capabilities more obvious. Setting this control to High or Medium noticeably boosted the highlights, adding an attractive punch to the picture and some richness to blacks and letterbox bars in subdued (not dark) ambient light viewing. However, as with other dynamic contrast schemes I've seen, it did so at the loss of some shadow detail and introduced modest blooming on facial highlights that could make those areas look a little pasty. The Low setting tempered these effects but didn't boost the highlights nearly as much as the other settings did. I ultimately left Dynamic Contrast off for my



● **LG's latest-generation Magic Remote.**



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● The stand measures 46 inches wide and features a graceful curve.

evaluations, but less critical viewers might find the extra punch worth the sacrifice.

Speaking of blacks and shadow detail, it was no surprise to me that, together, those performance traits turned out to be the LG's Achilles' heel. Local dimming for any edge-lit backlight is very tricky, though we've seen some excellent executions in late-generation LCD sets that can greatly minimize halo effects while optimizing overall black levels. On the default Medium local dimming setting that I eventually stayed with for most content, this one worked well enough with mid-to-high-brightness scenes viewed in darkness or modest ambient light. Extraction of shadow detail was generally excellent, too. But the LG had trouble delivering deep blacks on dark scenes, and it displayed more haloing and inconsistent backlighting around bright objects on dark backgrounds than I've seen with top-end LCD sets. I ran my reference Panasonic ST60 plasma (a display technology with self-emitting pixels) alongside the 65UF9500, displaying the same

content for most of my Blu-ray demos. On the active (non-letterbox) portion of the image, the LG went punch for punch through *Draft Day*, and even much of *Harry Potter and the Deathly Hallows: Part 2*, an overall dark movie. But the classic torture scenes in *Potter* (chapter 11) revealed the set's relatively poor native blacks, and letterbox bars were consistently more visible than I'd prefer, sometimes displaying stray backlight streaking on certain scenes.

On the plus side, detailed 1080p images from *Draft Day* and other discs scaled up crisply and cleanly to 4K on the set's screen, with no obvious ringing or jaggy artifacts. I also looked at two native 4K movies downloaded to Sony's FMP-X10 hard drive player and checked them against their Blu-ray counterparts, using matched calibrations on the HDMI 1 and 2 inputs and my Oppo BDP-103 delivering the BD version a few seconds ahead of the 4K to facilitate switching. From 9 feet away, the 4K version of *The Patriot* showed a subtle but definitely noticeable improvement in detail on longer shots (less so on

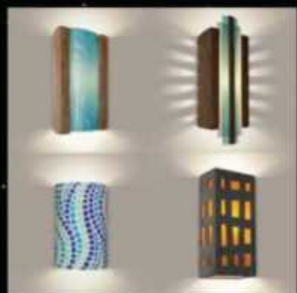
close-ups), and it clearly delivered a more natural and convincing rendition of film grain that made the image look, well, more film-like. Differences were much harder to detect on the recently remastered *Lawrence of Arabia*, which was scanned in from the original assets at 8K and mastered at both 4K and 1080p for the two versions I was viewing here. Perhaps the benefit of moving to a 4K ecosystem is as much about the extra detail picked up in the capture of native 4K content as it is about the extra pixels in the viewing screen.

The LG came with two pair of passive polarized glasses, but its 3D rendition proved to be a disappointment. My 3D demos of discs—including *Transformers: Age of Extinction*, *Coroline*, and *Avatar*—looked engagingly bright and detailed, but minor to moderate ghosting was apparent in most scenes, despite adjustments to the set's 3D controls. I could dial in any individual scene if I froze the image, but no one combination of settings (including Auto) sufficiently eliminated the crosstalk distortion.

Prime Perspective

As reviewed here, LG's Prime series gets a lot of things right, including accurate out-of-box color on its ISF presets, an extraordinarily wide viewing window, an excellent user interface and smart TV platform, and solid build quality with classy industrial design. At the \$2,800 list and street price it carried as we went to press in early October, the 65UF9500 is also a good value for a 65-inch TV of this quality. No, it won't deliver the deep blacks with challenging dark-room content that you can get from today's very best LCD Ultra HDTVs (or LG's own OLEDs), and, as noted, it doesn't offer the future-readiness for coded HDR or wide-gamut content being claimed by some models. But neither does it carry an uber-high price tag. If you're in the market today for a finely crafted big-screen TV for day-to-day viewing that makes a great impression on the vast majority of content you can toss at it, all for an attractive price, the 65UF9500 should be on your short list. ♦

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Is It DTS:X Yet?

By Mark Fleischmann

Denon AVR-X1200W A/V Receiver

PRICE \$599

THE DENON AVR-X1200W IS among a growing trickle of receivers that name-check DTS:X surround sound. By the time you read this, it might even be operational.

For every one of Dolby's home surround standards, there has been a DTS equivalent. The competition began in the mid 1990s, when Dolby Digital and DTS first went head to head on laserdisc, with DVD following soon after. Dolby then added back-surround channels for Dolby Digital EX; DTS responded with DTS-ES. Dolby upgraded to lossless encoding with Dolby TrueHD; DTS shot back with DTS-HD Master Audio. Object-oriented surround—which uses metadata to map objects in a dome-shaped soundfield—is no different. In response to Dolby Atmos, which has just begun infiltrating surround receivers, DTS offers DTS:X. This is a transitional time, and you'll find some models supporting Atmos without supporting DTS's answer. Others are "DTS:X ready," but not yet functional as they await the release of new firmware.

The Denon AVR-X1200W falls into the latter category, with the software update enabling DTS:X due in late 2015. Neither the update nor the requisite compatible content was available when this review was being written. But the tiny color "DTS:X" sticker on both sides of the carton hinted at pleasures to come.

Atmos and X in 5.1.2

The AVR-X1200W (\$599) is one of several new Denon receivers for 2015. The immediate step-up model is the AVR-X2200W (\$799). It has a little more power, of course, along with two more HDMI inputs, one more output, and ISF (Imaging Science Foundation) certification, which allows advanced video calibration by a certified technician.

AT A GLANCE



Plus

- **Dolby Atmos and DTS:X on board**
- **HDMI 2.0a with HDR video**
- **Audyssey MultEQ XT room correction**



Minus

- **Like other seven-channel AVRs, just two Atmos height channels**
- **Remote volume keys undernourished**

Both receivers have seven amp channels and therefore support Dolby Atmos and DTS:X in its most limited 5.1.2 configuration, with two height speakers. For 5.1.4—with four height speakers—you'd need at least a nine-channel receiver.

The front panel of the

AVR-X1200W offers the usual control layout, with one twist. In lieu of buttons that directly select listening modes or menus, Denon provides four Quick Select buttons that associate inputs with specific listening modes and volume settings. If you want to change listening modes within a certain input or do something else requiring menu navigation—well, don't lose that remote. The remote is conventional; my thumb wouldn't have minded if its skinny master volume buttons gained a little weight. The receiver's graphic user interface is spartan, though it does add a neat color speaker diagram for Audyssey auto setup. A control app is available.

The back panel has five HDMI inputs and one output. (There's also an HDMI input on the front.) This receiver is among the first to support HDMI 2.0a with all the trimmings, which include HDR (high dynamic

range) video, HDCP 2.2 digital rights management for Ultra HD content, the full UHD frame rate of 60 hertz, 4:4:4 color, and 21:9 widescreen video passthrough. Conspicuously absent are UHD upsampling (available on the step-up model) and the MHL variant of HDMI for connecting a smartphone (available on neither model).

If you haven't looked at the back panel of a \$600 receiver lately, you might be surprised to note the sunset of the analog component video interface; Hollywood lobbied to have it killed because it supports high-definition video but doesn't support anti-copy schemes. Let owners of early-generation HDTVs beware. Composite video has slimmed down to two ins and one out. While Denon does throw in an extra subwoofer output jack, there's no multichannel input to connect a multichannel-analog-out signal source (such as a high-end Blu-ray



RATING

Denon AVR-X1200W A/V Receiver

Audio Performance ★★★★★

Video Performance ★★★★★

Features ★★★★★

Ergonomics ★★★★★

Value ★★★★★

THE VERDICT

Triple wireless connectivity and excellent room correction may lure more listeners to this top-performing budget receiver than its limited 5.1.2 Dolby Atmos and DTS:X capabilities will.

A/V RECEIVER

DENON AVR-X1200W A/V RECEIVER

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player with premium DACs) and no analog multichannel output to feed an external multichannel amp. You pay more for those things now.

In the recent past, Denon would have been hailed as a conquering hero for fully integrating Wi-Fi, AirPlay, and Bluetooth wireless features. Now those things are taken for granted—and woe be to the manufacturer who demands a hundred bucks extra for an awkward adapter. Wi-Fi enables you to use AirPlay and DLNA devices without having to run Ethernet to the receiver. Denon adds its own HEOS Link IP control, which, in conjunction with a HEOS Link preamp module (\$349), turns the receiver into a HEOS zone player while allowing the HEOS wireless multiroom app to boot up and control it. Streaming options include Pandora, SiriusXM Internet Radio, Spotify (which runs with the Spotify mobile app), and vTuner for Internet radio.

While most receiver manufacturers are now using home-baked (and sometimes half-baked) auto setup and room correction schemes, Denon takes the high road, ponying up licensing money for Audyssey room correction. The AVR-X1200W

features the Audyssey Silver package, a notch higher than the Audyssey Bronze offered in last year's similarly priced AVR-S900W. The difference includes a step up from MultEQ (with six measurement positions) to MultEQ XT (with eight measurement positions and greater filter resolution). So strong is Denon's belief in proper room correction that they even provide a cardboard microphone stand, allowing you to get the mic at the right level without using a camera tripod or jury-rigging a pillow heap. Audyssey Silver also includes the excellent Dynamic EQ and Dynamic Volume modes to improve low-level listening and smooth out volume differences among sources.

Associated equipment included five Paradigm Reference Studio 20 v.4 speakers and a Paradigm Seismic 110 subwoofer. For Atmos demos, I used the Pioneer Elite SP-EB573-LR Atmos-enabled monitor and SP-EC73 center. Signal sources included an Oppo BDP-83SE universal disc player, Micro Seiki BL-21 turntable, Shure V15MxVR/N97XE cartridge, and the phono stage of a Denon PRA-S10 preamp. All movie demos were on Blu-ray Disc.

From the Bottom UP

Like its predecessor the AVR-S900W, the AVR-X1200W starts with an amp that's a treat to listen to on its own, with a clean and well-behaved top end and surprisingly good bass for this price point. Adding Audyssey MultEQ XT room correction usually offered subtle imaging improvements while tampering relatively little with the tonal balance; perhaps Audyssey's algorithm agrees with me that these receivers are listenable to begin with. As I've done in the past, I used Audyssey's Reference mode (with a slight cinema EQ rolloff) for movies and the livelier Flat mode for music.

Night at the Museum: Secret of the Tomb gave the receiver a chance to demonstrate its virtues while stepping out of the way—"no personality," I told my notebook approvingly. Timbral neutrality didn't get in the way of dialogue clarity, surround envelopment, and overall listenability as Ben Stiller was propelled through a maelstrom of

aggressive effects that complemented the onscreen CGI magic. I did wonder if the thunder of triceratops feet might have been overdone. But the receiver's ability to juggle complex effects while maintaining its dynamic cool was impressive for the price.

The Equalizer pits Denzel Washington against Russian mob thugs in a dynamically potent soundtrack. With Denzel's voice localizing in the sub, this time I was sure the bass was out of whack. Eventually, I identified the cause. It wasn't Audyssey's EQ per se; it was Audyssey's recommendation to set the sub level at 50 percent before measurement. This didn't give the room correction program enough leeway to set the right overall sub level during setup before equalization. A minor twist of the sub's volume knob offered a temporary fix. (The permanent fix was to adjust the sub and rerun Audyssey for the next demo.) Once this distraction was eliminated, I got a charge out of how aggressively the soundtrack built up its echoing, bassy swirls of amorphous, ominous, all-channel music and psychologically subjective effects, which somehow enlarged and built upon the actor's intensity and depth. It was meant to sound huge, and the receiver delivered.

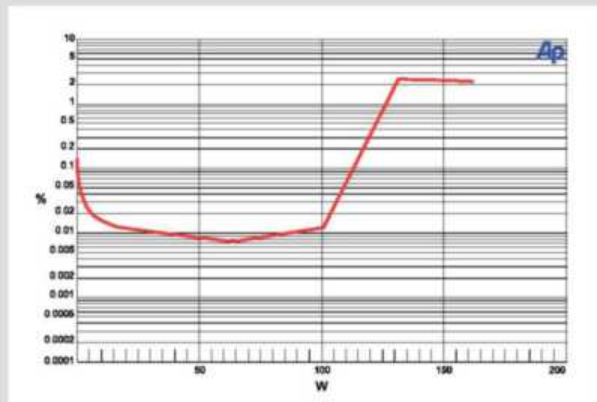
I switched to the Pioneer speakers for the Atmos demo of *Teenage Mutant Ninja Turtles*. Running Audyssey MultEQ XT a second time, I dropped the initial sub volume from 50 to 33 percent, which allowed the program enough leeway to dole out bass in the right proportion. The receiver also allowed plenty of leeway in setting front height levels, and I took full advantage with a whopping 10-decibel boost. While unobtrusive, this did make the ceiling effects pop, including the shattering strip light in the subway battle, voices



● **The front-panel Quick Select buttons associate inputs with specific listening modes and volume settings.**

Test Bench

Denon AVR-X1200W A/V Receiver



AUDIO This graph shows the AVR-X1200W's left channel, from Audio1 input to speaker output with two channels driving 8-ohm loads. Measurements for THD+noise, crosstalk, signal-to-noise ratio, and analog/digital frequency response were all within expected performance parameters. Full details available at soundandvision.com.—*MJP*

	0.1% THD	1.0% THD
2 Channels Continuously Driven, 8-ohm Loads	112.8 watts	126.1 watts
2 Channels Continuously Driven, 4-ohm Loads	139.2 watts	164.3 watts
5 Channels Continuously Driven, 8-ohm Loads	69.9 watts	78.8 watts
7 Channels Continuously Driven, 8-ohm Loads	47.4 watts	57.9 watts

VIDEO The Denon does not upconvert; the resolution at its output is the same as the resolution at its input. It also produced a Borderline result in rolling off the highest frequency horizontal chroma response test burst, which was barely visible when viewed from close to the screen.—*TJN*

SPECS

Power Output: 7 x 80 watts (8 ohms, 2 channels driven) • **Auto Setup/Room EQ:** Audyssey MultEQ XT Silver • **Video Processing:** 4K passthrough, 60 Hz, 4:4:4, HDR • **Dimensions (WxHxD, Inches):** 17.1 x 5.9 x 13.3 • **Weight (Pounds):** 18.75 • **Video Inputs:** HDMI 2.0a (6), composite video (2) • **Audio Inputs:** Optical digital (2), stereo analog (2) • **Additional:** Wi-Fi antenna (2), Ethernet (1), USB (1), AM (1), FM (1), IR (1) • **Video Outputs:** HDMI 2.0a (1), composite video (1) • **Audio Outputs:** ¼-inch headphone (1), subwoofer (2)

lurking overhead on a fire escape, and the score's numerous choral incantations, which added to its improbable majesty. I moved on to the *Dolby Atmos Demonstration Disc*, playing parts of it at unprecedented

volumes that would make any \$600 receiver clip. The Denon chugged along gracefully with seven very active channels, betraying little sign of trauma, perhaps aided by the subtle rolloff in the MultEQ XT

Reference setting. The disc's bass effects were especially well shaped.

Double Helix in the Sky Tonight

I can't afford the now legendary Cisco pressing of Steely Dan's *Aja*—but the Japanese single-layer SACD has turned out to be an excellent investment. Denon's treatment of this best-case demo material was a home run; I couldn't find any way to pick it apart. The grooves were solid and satisfying, and Audyssey's now-tweaked sub response kept even the fattest bass lines ("Black Cow") under firm control. Lead and backing vocals were lush and almost shockingly colorful. When the Dan mustered their full arsenal of guitars, keys, vibes, saxes, and vocals in the overachieving title track—not to mention Steve Gadd's explosive drum solo—the receiver coped with the simultaneous demands of dynamics and layering. All of this applied in both the room-corrected Audyssey Flat mode and the uncorrected direct and pure direct modes. (Pure direct attempts to improve on plain direct by shutting down the front-panel display and analog video circuit, though I didn't hear a difference.)

Following a recent train of thought, I picked Tchaikovsky's *Symphony No. 4* off the LP shelves. This was a Deutsche Grammophon pressing of Claudio Abbado leading the Vienna Philharmonic in 1975, the late period of analog's golden era, and therefore about as good as demo material

● Mark found the supplied remote to be a little skimpy.



gets. The receiver fearlessly resolved the peerless soaring strings with no sugarcoating or fatigue. The direct mode was marginally warmer, while the MultEQ XT mode was marginally better focused, though both were engrossingly listenable. The lively pizzicato of the Scherzo got the rhythmic momentum and definition it deserved, especially in the lower strings.

The closest I got to a gotcha! moment was the Audyssey treatment of *Sgt. Pepper's Lonely Hearts Club Band* from the vinyl box set of *The Beatles in Mono*. What should have been a solid mono image was

slightly spread out, as though certain frequencies were being pulled to the sides. The image snapped into tight monaural focus when I switched to direct mode. The unvarnished amp's presentation was also denser, more rounded in a pleasing way, and greater in depth, which enhanced the separation of instruments occupying the same space. Perhaps Audyssey is optimized more for surround and stereo material than for mono.

The Denon AVR-X1200W is a great-sounding receiver with top-notch room correction—granting that there's no such thing as perfect room correction if you push it far enough. Getting Audyssey takes the sting out of a few minor feature omissions (such as UHD upsampling and MHL). The \$600 receiver in general remains one of the most extraordinary value propositions in consumer electronics, and this specimen is up there with the best. ●

Audio editor Mark Fleischmann is also the author of the annually updated book *Practical Home Theater: A Guide to Video and Audio*, now available in both print and Kindle editions.

● The AVR-X1200W supports HDMI version 2.0a.



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All About That Base

By Mark Fleischmann

Zvox SoundBase 570

PRICE \$350

THE SPEAKERS BUILT INTO TVs continue to be dreadful. But many people find component systems an intimidating solution. According to the folks at Zvox, “there are too many boxes, too many cords, too many remote controls, and too many owner’s manuals in the world today.” If you feel the same, you may be a candidate for a soundbar. If you want your TV to sit atop your audio system, make that a soundbase. Zvox pioneered this product category (they actually trademarked the SoundBase name) and offers models from \$250 to \$500. The SoundBase 570 (\$350, reduced from \$400) falls somewhere around the middle.

For TVs Up to 60 Inches

The SoundBase 570 is designed to go with TVs from 26 to 60 inches. The TV’s built-in pedestal must not be more than 29 inches wide or more than 13 inches deep (which leaves a 1-inch margin all around), and the set itself should not weigh more than 125 pounds. Most 60-inch plasma and LCD sets weigh less than 80 pounds, so if you stay within the size limitation, weight shouldn’t be an issue.

Like any decent speaker—but not necessarily all soundbases or bars—the 570 is made of medium-density fiberboard with rounded corners. It is covered in pleasingly textured strike-a-match vinyl and has a solid, well-made feel. You hoist it out

AT A GLANCE

+ Plus

- Good sound quality for movies and music
- Solid fiberboard enclosure
- Bass and treble controls
- Learns IR codes from your TV remote

– Minus

- AccuVoice Dialogue enhancer can sound tinny

of the box and think, hmmm, this isn’t bad for what I paid.

The front panel is covered with a metal grille, behind which is a large, easy-to-read orange display. The minimal controls include volume up/down, mute, and input, plus an analog minijack. They’re at the bottom right side of the front panel and easy to miss; perhaps they belong on the top edge, though the intent may have been to make them disappear.

This system doesn’t use HDMI or switch video. The highest-quality audio inputs are the three S/PDIF digital jacks: two optical and one coaxial. Two-meter optical and analog cables are supplied. Two pair of RCA analog input jacks are also present in addition to the front minijack. The system accepts up to a 5.1-channel Dolby Digital or stereo PCM input. When receiving a PCM stereo signal with matrix encoded old-school

analog Lt/Rt Dolby Surround, it can extract the center and surround channels. It further accepts a Bluetooth signal, uses the integrated BlueGiga module, which Zvox avows to be the best available for this purpose, and it supports the aptX codec for cleaner sound.

There’s a subwoofer output, though the system doesn’t include a sub; the general idea is that you won’t need one. If you decide you have to shake the earth by adding a sub, the output passes a full-range signal, allowing you to set the crossover in the subwoofer at a recommended 50 hertz. Also included is a stereo full-range output. Rated frequency response for the system as a whole is 45 Hz to 20 kilohertz. Plus or minus how many decibels? You might well ask. See our Test Bench measurements for the answer.

The SoundBase has a quintet of 2-inch drivers firing out of the front plus a single 5.25-inch “subwoofer”—in this context, maybe more of a woofer—firing from the bottom into the half-inch gap established by the unit’s round rubber feet. The front drivers cross over to the bottom bass driver at 250 Hz. The 65-watt Class D amplifier allocates roughly half of its output to the bass driver and divides the rest among the front drivers. All of these long-excursion drivers utilize paper cones with polyurethane surrounds and are designed by Zvox and manufactured to the company’s specs.

The five front drivers deliver five channels of information but not in the way you might assume. Here, a left driver and a right driver flank three center drivers. They are served by three amp channels.

RATING

Zvox SoundBase 570

Performance ★★★★★

Features ★★★★★

Ergonomics ★★★★★

Value ★★★★★



Of the three center drivers, only the one in the middle covers the tweeter range, operating from 250 Hz to 20 kHz to “ensure an even spread of high frequencies into the listening space,” explained a Zvox engineer. The driver on either side of it operates from 250 Hz to 5 kHz.

The far left driver handles both the left channel and any left-surround signals it receives from the surround processor; ditto the right side. The proprietary PhaseCue virtual surround processing mixes in the surround signals “with a relative phase relationship that causes a listener to hear each surround signal primarily toward the left or right side, outside the location of the main cabinet,” said the Zvox engineer. The result is claimed to be a soundstage up to 8 feet wide. The three-setting Surround control varies the perceived width by adjusting the level of this phase-manipulated information relative to the levels of the front channels.

In addition to the Surround mode, the SoundBase offers an AccuVoice mode (said to be derived from hearing-aid technology) that enhances dialogue and overrides the current Surround setting while in operation. An Output Leveling control reduces volume swings among different TV channels or inputs; it also boosts dialogue.

The remote control is about half the size of a conventional remote, though larger and thicker than a credit-card-



Zvox confirms its mastery of the genre.



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SOUNDBASE

● **The SoundBase 570 can accommodate a TV from 26 to 60 inches.**



sized remote. It runs on two AAA batteries (easier to find replacements for than a watch battery). Buttons include power, volume, mute, input, AccuVoice on/off, Output Leveling on/off, the three-step Surround control, an 11-step bass control, and a nine-step treble control. They are membrane buttons, which is always annoying. However, the SoundBase 570 can learn IR commands from your existing TV or set-top box remote to control power on/off, volume up/down, and mute. If you don't expect to use the input, AccuVoice, Output Leveling, or Surround controls in day-to-day use, you could retire the factory remote to a nearby drawer.

Source components included an Oppo BDP-83SE universal disc player and a Samsung cable box supplied by Time Warner Cable. While the unit does accept a Dolby Digital 5.1 input, everything else—including DTS—must be converted by the source component to generic PCM 2.0. Zvox recommends setting your player to Dolby Digital 5.1 or Multichannel Lt/Rt (not stereo) downmix, and I acted accordingly. Both sources were connected to the TV via HDMI, and the TV was connected to the SoundBase via digital optical cable. I also used a digital coaxial cable to connect the disc player directly to the SoundBase. Although redundant, this connection allowed me to leave the TV off when I played music with the disc player and SoundBase. It also allowed an option to feed a multichannel Dolby Digital bitstream straight from the player to the SoundBase. Few

THE VERDICT

Simplicity and well-balanced sound make this affordable TV base sound system a natural for those seeking a no-fuss solution to the awful speakers built into flat-panel displays.

TVs pass multichannel audio presented at their HDMI inputs out through their optical connections without downmixing it to stereo, so a direct connection via S/PDIF digital is guaranteed to keep those signals intact.

Contemplating the Tones

Zvox makes no claim to the SoundBase 570 being a discrete 5.0-channel soundbar, though its Dolby Digital decoder recognizes and uses the information found in the center and surround channels of Dolby Digital 5.1 soundtracks. According to Zvox, the three settings of its PhaseCue Surround control provide steadily increasing levels of surround effects. The first setting, Sd 1 on the display, also emphasizes dialogue more than the other two.

For a definitive surround experience, I turned (as I often have) to *The Lord of the Rings: The Fellowship of the Ring*, being careful to choose the DVD's Dolby Digital 5.1 soundtrack since DTS would have been downmixed to PCM Lt/Rt or stereo. In three hours of special-effects bombardment, I discovered that while the surround modes did expand the system's width beyond its borders by up to a couple of feet, depth was just as big an advantage. The Carl Orff-like choral music that serenades key moments in the film seemed to leap out a foot or two from the front of the base. When the lords Saruman and Sauron confer by crystal ball, the latter's bone-chilling instruction—"build me an army worrrthy of Morrdor"—reached even farther toward the seating position.



● **The remote uses membrane buttons.**

ZVOX SOUNDBASE 570

PRICE: \$350

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Test Bench

Zvox SoundBase 570 Sound System



SOUNDBASE 570 (purple) + 2.33 / -2.32 dB, 200 Hz to 10 kHz; -3 dB @ 42 Hz, -6 dB @ 39 Hz.—*MJP*

SPECS

5.25 in paper cone woofer, 2 in paper cone full-range driver (5); 65 watts total, Class D; 30 x 3.5 x 14.5 in (WxHxD), 19 lb; optical digital in (2), coaxial digital in (1), stereo analog RCA in (2), stereo analog 1/8-inch in (1); sub out (1); stereo analog 1/8-inch out (1); Bluetooth aptX

While dialogue was generally intelligible, occasionally a low-voiced scene would call for a button-pressing solution. I usually preferred switching from surround-rich Sd 3 to dialogue-enhancing Sd 1 because it sounded better than the alternatives. The AccuVoice control bent the tonal balance out of shape, making everything unpleasantly tinny. And the Output Leveling control, which includes a dialogue boost, required the system to operate closer to the top of its volume control's range and induced an overall hardness. However, switching to Sd 1 had side effects of its own that affected other soundtrack elements. In the scene where Frodo approaches the inn that's called the Prancing Pony, Sd 1 made rainfall, as well as voices, louder. But Sd 1 was the most benign solution of the three; it allowed the system to maintain its winning personality and still provide a modicum of dialogue enhancement during the quietest scenes.

SoundBase owners watching Blu-ray Discs may likely encounter titles that carry multichannel DTS soundtracks, for which the SoundBase 570 lacks onboard decoding. So I ran through a few of these, despite the fact that the downmixed PCM signals might not be received with surround encoding intact. *Fire with Fire*, the story of a fireman on the run from mob thugs, includes a gunfight with elongated bullet trajectories, as well as a climactic fire scene with all five channels active. The Zvox made these potentially surround-rich scenes somewhat spacious but not exactly enveloping. The DTS-HD Master Audio soundtrack, being downmixed to stereo, may not have had enough out-of-phase material to trigger the surround effects.

The soundtrack of *71* (Blu-ray, Dolby Digital 5.1), a soldier's story set in Belfast during "the Troubles," includes a shocking terrorist blast in a pub. With all 5.1 channels active in the

The SoundBase 570 is a finely tuned system out of the box.

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● At just 3.5 inches tall, the SoundBase 570 is trim and unobtrusive.

Dolby Digital soundtrack, the blast did sound subjectively big for a split second, firmed up by the oomph of the bass driver. It's hard to get much low-bass extension out of this kind of system, but higher bass frequencies were reasonably forceful. When I sat at my desk across the room, my fingertips could feel the bass vibrating the computer's keyboard.

The Haydn Challenge

I expect soundbases and bars to be unable to provide the last iota of resolution with well-recorded orchestral music. What I didn't expect here was how competent and pleasurable the Zvox could be anyway. On a Chandos CD, Jean-Efflam Bavouzet performs three Haydn Piano Concertos with Gábor Takács-Nagy leading the Manchester Camerata. The Zvox has no stereo mode, but among the three surround settings, there really wasn't a bad choice for this music. Eventually, I came to prefer the surround-enhancing Sd 2 and 3 because they warmed up the overall

tonal balance just a little. What consistently surprised me was the piano, which was rhythmically coherent in the right hand and pleasingly solid, if not entirely linear, in the left hand.

Jorma Kaukonen's *Quah* has been in heavy rotation for several months, and this CD proved to be a slightly tougher test. I'd have thought Sd 1 would have been perfect for unadorned voice and acoustic guitar, but it turned out to be unpleasantly bright, driving me to the Sd 2 and 3 modes. I moved around the seating area, and while the vocal communicated best directly on axis, there were no dramatic shifts off axis. Repeatedly playing the Rev. Gary Davis' "I'll Be All Right" and "I Am the Light of This World"—partly just to cheer myself up—I experimented with pushing the bass control up one notch to strengthen Kaukonen's bottom strings and dropping the treble down one notch to make the top strings less bright. But these were subtle variations, and I finally felt the album

sounded fine with the tone controls flat in Sd 2 mode. The SoundBase 570 is a finely tuned system out of the box.

A two-channel CD with lots of embedded out-of-phase information flung the PhaseCue surround processor into interstellar overdrive. From the first few seconds, Radiohead's *Kid A* sent a heavily processed secondary vocal careening out of the 2-inch paper cone on the far right, detaching more than 3 feet from the base—farther than anything in any other demo. At the same time, I felt (rather than heard) an indefinable sense of phase-manipulated fullness throughout the room that didn't seem localized or tied to any particular element. It was like simulated surround on steroids. I could close my eyes and sense the SoundBase filling the room. It was visually discombobulating to open them and see the small object on the table. These miracles occurred in the middling Sd 2 mode.

With the SoundBase 570, Zvox

confirms its mastery of the genre. This product is inexpensive and rugged. Except for the AccuVoice and Output Leveling modes, which got on my nerves, this base sounds great, with a good overall timbral balance—and with surround modes that are so musically adept that the company apparently didn't find it necessary to include a basic stereo mode. In fact, while the 570 is great for movies, it's a surprisingly pleasant musical performer as well—and that's a good thing, with more and more sound system owners Bluetoothing tunes from their phones and tablets. If your flat-panel TV is looking for a dependable mate at low cost, here it is. ♦

Audio editor Mark Fleischmann is also the author of *Practical Home Theater: A Guide to Video and Audio Systems*, now available in both print and Kindle editions.



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HDTV, Anyone?

By Al Griffin

RATING

Vizio E65-C3 LCD HDTV

Performance ★★★★★

Features ★★★★★

Ergonomics ★★★★★

Value ★★★★★

Vizio E65-C3 LCD HDTV

PRICE \$1,000

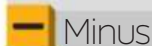
LET'S HEAR IT FOR THE GOOD, old-fashioned HDTV. You know, the sort that once wowed us with its ability to display crisp, high-definition broadcasts, Blu-ray Discs, and other next-gen sources of home entertainment. In recent years, however, HDTVs have been upstaged by Ultra HDTVs—fancy-pants upstarts that promise compatibility with all manner of future innovations, from UHD Blu-ray to High Dynamic Range (HDR) video. It should come as no surprise, then, that such sets cost on average 50 percent more than their regular HDTV brethren.

Vizio's E series is the company's high bang-for-the-buck, entry-level HDTV line—the only 1080p series it sells. And at \$1,000 for 65 diagonal inches of screen real estate, the E65-C3 delivers fairly serious bang. The big achievement with the E series is that Vizio has managed to bring a feature usually found only in expensive, high-end sets—a full-array LED backlight with local dimming—to the company's most affordable TVs. Local-dimming zone count varies with screen size, but with the 65- and 70-inch models, that number is 16. A higher number is better, of course, and more expensive local dimmers from other manufacturers do offer more zones and more precise control of the backlight. But this is still a great feature to find in a budget television. The E series also boasts a 240-hertz “effective” refresh rate (essentially, 120 Hz with backlight scanning) plus a new six-core processor (quad-core central processing and dual-core graphics processing) for

AT A GLANCE



- Accurate color
- Good contrast
- Inexpensive



- So-so shadow detail

smoother, speedier navigation of its smart TV user interface, now called VIA (Vizio Internet Apps) Plus.

What wonders will you encounter as you smoothly and speedily navigate VIA Plus? Netflix, Amazon Instant Video, Hulu Plus, and VuDu, for starters, as well as Spotify, Pandora, and TuneIn Internet radio. And that's just scratching the surface; there are plenty more apps to peruse. The VIA Plus interface can be navigated in full-screen mode or via a strip running along the bottom of the screen that lets you scan selections without having to block the video you're currently viewing.

Along with its new tech enhancements, this year's E series sports a few cosmetic changes. The screen is surrounded by an all-black bezel with black trim. And the TV stand is different for 2015, with last year's wobbly central platform replaced by a set of slim feet. Overall, I find the new design to be both better looking and sturdy.

The remote control that comes with E series sets is smaller and lighter than previous Vizio remotes. It's still loaded with small, non-backlit buttons that are difficult to locate in a dim room, but at least the controls to access Amazon and Netflix are displayed prominently at the top. IR reception is considerably more sensitive than with previous Vizio models I've used; I could control the TV by pointing the remote anywhere in the general direction of the screen.

Setup

To calibrate the E65-C3, I selected its Calibrated Dark picture mode and made adjustments in the 11-Point White Balance and Color Tuner (color management system) submenus. These are also nice features to find in a value-priced HDTV, though perhaps lost on the purchaser of a \$1,000 set who is unlikely to spend several hundred dollars more for professional calibration. Fortunately, the out-of-box measurements for this picture mode were very good (see Test Bench). Other advanced picture adjustments include Gamma presets, Active LED Zones (turns local dimming on/off), and a Black Detail setting. There are also sliders to independently tweak levels of Judder and Motion Blur in the image.

Turning on Active LED Zones improved the Vizio's contrast ratio dramatically, bumping it up from 3,314:1 to 17,800:1. I also found that images had significantly better shadow detail with the Medium Black Detail preset selected. Enabling

judder reduction added an expected level of soap-opera effect, though this wasn't as noticeable when judder reduction was applied sparingly. There's also a mode called Clear Action that further helps reduce motion blur, though that setting limits the TV's overall brightness capability.

The E65-C3 had some glitches that I haven't experienced with other Vizio TVs I've tested. With HDMI CEC enabled, it wouldn't recognize my Oppo BDP-105 universal disc player, even after running a Device Discovery scan. (I usually like to tap this feature to control a Blu-ray player using the TV's remote.)

It also wouldn't pass a DTS soundtrack from its HDMI input to its analog audio output, a connection I usually make for the old soundbar I use when evaluating video displays. On the other hand, using my Xbox One as a source (though, oddly, not the Oppo), the Vizio successfully played both Dolby Digital and DTS soundtracks through its internal speakers and, critically, passed Dolby Digital and DTS 5.1-channel bitstreams from its HDMI input to its optical output. The latter means that modern multichannel soundbars hooked up to the optical connection will see those signals with all surround information intact, provided the Vizio's audio menu is properly set.



● The E65-C3 features full-array LED backlighting with local dimming.



THE VERDICT

Vizio's E65-C3 is a very good HDTV that delivers considerable bang for the buck.

Performance

After transferring the E65-C3 to my home theater system—which has a preamp/processor and a multi-channel amp to independently handle audio—I checked out a new Blu-ray of *It Follows*. This was one of the creepiest, smartest, and most visually interesting horror movies I'd seen in years, and I was stoked to watch it again.

When I viewed a scene where Jay and her date sit in a dim movie palace, shadows in the theater looked deep and black, and there was a decent amount of detail in the clothes of other moviegoers behind them. Highlights such as accent lights on the theater walls and white plastic lids of soda cups popped on the Vizio, creating an impressive sense of depth.

In a later scene outside an abandoned building where Jay and her date park, the nighttime sky in the background appeared as a uniform shade of black. Letterbox bars in the image showed no spotlights or other backlight-related weirdness, though the set's viewing angle was fairly tight, with contrast fading quickly when I moved to a seat 15 degrees or more off center. This isn't unusual with LCDs that don't use IPS (in-plane switching) panels,

SPECS

Dimensions (WxHxD, inches): 57 x 36 x 12 (with stand)
• Weight (Pounds): 52 • **Video Inputs:** HDMI 2.0 (4), component video (1), composite video (1) • **Other:** LAN (1), tuner, USB • **Audio Outputs:** Analog stereo; optical digital

● **The E65-C3 provides four HDMI 2.0 inputs.**



though the Vizio's window was a bit tighter than most.

While the E65-C3 did a good job handling dark scenes, it didn't fare as well with more challenging shots having an equal mix of dark and light content. For example, in an outdoor scene where Jay and her sister take a late afternoon stroll through their suburban Detroit neighborhood, shadows in the trees lining the streets looked somewhat crushed, and that was with the Black Detail setting switched to Medium to help optimize shadow detail.

The Vizio's color rendition, on the whole, was very good. In another scene from *It Follows*, a car pulls up to a lake house where the teens flee to elude "It." Here, the autumn trees displayed a rich range of green, yellow, and orange hues. The lake itself came across as a natural blue-green, while the teens' colorful '80s-era clothes looked vivid. Characters' skintones were natural, showing clear differences in Jay's milky-white complexion and her sister Kelly's olive tone.

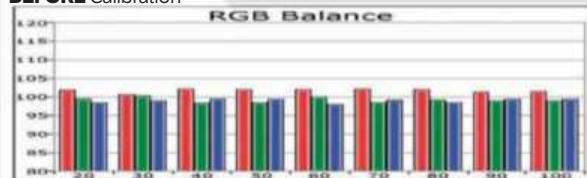
Conclusion

At \$1,000, Vizio's E65-C3 is a good deal for a 65-inch smart HDTV sporting a full-array LED backlight with local dimming. I like its classy, streamlined look, as well as the no-nonsense Vizio Internet Apps Plus interface that mostly just feeds you, well, apps. On the performance side, the E65-C3's excellent screen uniformity, deep blacks,

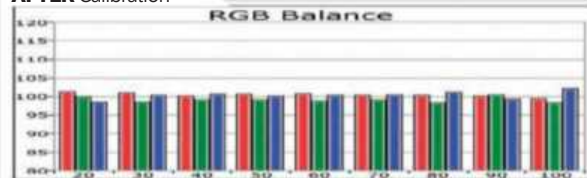
Test Bench

Vizio E65-C3 LCD HDTV

BEFORE Calibration



AFTER Calibration



FULL-ON/FULL-OFF Contrast Ratio: 17,800:1

FOR the picture settings plus additional details on calibration and video-processing tests for this review, go to soundandvision.com.

PRE-CALIBRATION measurements were made in Dark Calibration mode at the default settings. Post-calibration measurements were made in the same mode. With the Vizio E65-C3's Active LED Zones setting on, its black level measured 0.002 foot-lamberts and peak white 35.6 ft-L, for a contrast ratio of 17,800:1. When the Active LED Zones was switched off, the Vizio's black level measured 0.022 ft-L and peak white 72.92 ft-L, for a contrast ratio of 3,314:1. Highest peak brightness was delivered by the default settings in the Computer mode: a retina-searing 93.4 ft-L.

BEFORE calibration, the Vizio's grayscale was mostly even at all IRE levels. The Delta E of its pre-cal grayscale averaged out to an impressive 1.9; calibration improved things slightly to 1.6, with a high of 2.4 at 80% brightness. (Delta E is a figure of merit that indicates how closely a display adheres to the Rec. 709 HD color standard. Experts generally agree that levels below 3 are visibly indistinguishable from perfect color tracking.)

THE Delta E of the Vizio's color points in the Dark Calibration mode's default settings averaged 3.1. Calibration using the set's color management system adjustments improved that a bit to 2.0.

WITH the 2.2 Gamma preset selected, gamma in the Dark Calibration mode averaged 2.1. Post-calibration, it remained basically the same, with some non-linearity showing at 90 IRE.

THE Vizio passed all of our standard- and high-def video-processing tests, Chroma Multiburst excepted (a not terribly unusual result).—AG

and accurate color are all big pluses. Where this set could stand improvement is in its rendering of shadow detail, though the impact of this can vary significantly with the content you're watching. Vizio also apparently

needs to work out those glitches with the set's audio processing and HDMI CEC features, perhaps for a future firmware update. Overall, though, if you're on a tight budget and don't mind opting for a traditional 1080p set as the rest of the world shifts to Ultra HD, the E65-C3 is a great option. ◆

● **Vizio's remote offers direct Amazon and Netflix buttons right at the top of the wand.**



Small Matter

By Daniel Kumin

Artison RCC Nano 1 Subwoofer

PRICE \$999

EVER SINCE THE FIRST HOMINID bashed another hominid over the head (with the femur of a third hominid), humankind has pursued one arms race or another. From the atlatl to the AR-15, man's competitive genius always finds a way to up the ante. One rather more constructive expression of this innate drive can be seen in the long-standing contest to extract more and more bass out of smaller and smaller boxes.

Witness the RCC Nano 1. At just 7.5 x 8 x 9 inches and a flyweight 18 pounds, the new micro-subwoofer from Artison, a Nevada maker best known for elegant on-wall speakers, packs some fairly high tech to squeeze a claimed 32 hertz from a sub having the approximate footprint of a healthy honeydew. An extruded-aluminum enclosure yields maximal internal volume for minimum external space, while DSP and a Class D amp backed up by a switch-mode power supply and output claims of 300 watts (900 W peak) provide the magic required to conjure up loud 'n' low from opposed-paired 6.5-inch aluminum-cone drivers; the opposing force of the moving masses in this configuration limits cabinet vibrations (and keeps the little sub from "walking" across hard surfaces at full cry).

"Jewel-like" is an expression perhaps overused in audio reviews,

AT A GLANCE

+ Plus

- True bass from truly tiny sub
- Highly flexible setup, including wireless option
- Beautifully made and finished

- Minus

- Finite upper-volume limits
- Display too small to discern easily

but the Nano earns the sobriquet. You can see it in the sub's beautifully black-anodized, slim-wall aluminum cabinet, with shadow-etched "Artison" and pinpoint-blue-LED columnar display along one corner, as well as in its Bentley-like fit of grille seams and control edges (and classy packaging).

Setup

Setting up the Artison proved a bit tricky. First, the five push buttons that serve as the user interface, arranged in one corner, aren't immediately intuitive in their operation. Second, the connectors and setup controls are all teeny-tiny, recessed into a shallow bay inset on the sub's bottom panel. (Admittedly, this makes for a sanitary setup in the end.) Third, the eight-segment LED column, the

sub's only readout, is discreet to the point of near-invisibility in a well-lit room. (And at floor level, it's pretty much impossible to determine the number of lit segments for volume, even in a dim room.) Nonetheless, a bit of study in the manual—which, frankly, could be more explicit and better labeled—and a couple of tries brought the little sub to life. Despite its miniaturization, the Artison offers a full array of subwoofer features: both line- and high-level inputs (on 1/8-inch and IEC/Phoenix bare-wire terminals, respectively), plus wireless operation (via the company's deck-of-cards-sized, \$149-option transmitter); continuous crossover and phase knobs, and audio-sense/12-volt-trigger/manual power-mode toggles. A second minijack accepts a wired IR sensor for in-cabinet deployments, a second wire terminal connects the aforementioned trigger.

I initially set up the Nano right next to my everyday sub, a towering SVS PC12-Plus, where it looked like something the latter might have given birth to. I connected the transmitter to my pre/pro's subwoofer output via a supplied (and very classy) short minijack/RCA adapter

RATING

Artison RCC Nano 1 Subwoofer

Performance ★★★★★

Features ★★★★★

Build Quality ★★★★★

Value ★★★★★

cable. The proprietary transmitter box is billed as one-touch simple, and indeed, sub and transmitter paired in response to a single three-second button press—yay! Since I expect most users will be mating the Nano with slim or small on-wall or in-wall speakers, I began with a standard 80-Hz crossover to my main-front stand-mount monitors.

The audible result was promising. The Nano made a fairly easy match to my left/right pair, producing fully satisfying bass weight and depth from pop music and jazz. Like any subwoofer, it proved highly sensitive to placement, and as with most bass-limited smaller subs, I found myself adjusting its level a bit from audio program to program. I axed a



slight residual heftiness by switching the sub's crossover-slope mini-toggle from 12 to 24 decibels per octave; despite having the crossover frequency knob all the way up, which allowed my pre/pro's crossover to do the work, this seemed to render a slight but valuable tightening. I subsequently concluded that moving the Nano smack into a front corner (instead of my long-proven big-sub location several feet out) gleaned a decibel or two of useful level and, perhaps, a few hertz of additional low-end extension.

Performance

After my setup adjustments, a song like Tower of Power's classic "Down to the Nightclub" (from 1972's *Bump City*) sounded very nearly as punchy as with my everyday behemoth, as long as the master volume remained reasonable: loud, but not excessively so. At the threshold of practical conversation, the little Artison lost a



● The Nano 1 micro-sub measures just 7.5 x 8 x 9 inches and weighs 18 pounds.

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SUBWOOFER

● The connectors and setup controls are located in a recessed bay on the Nano 1's bottom panel.



THE VERDICT

If you demand real bass from a really small subwoofer (and you have \$1,000 to pay for it), Artison's got your micro-sub.

remarkably good and quite dynamic even at near-concert-hall levels. I preferred the Artison's "Music" EQ preset to its "Movie" one for all listening. This clearly went lower and sounded tighter, with considerably less boom, at the sacrifice of perhaps 4 or 5 dB of max level. Multiple Nanos might be a viable option for bigger spaces: The manual states that up to three

can be driven from a single wireless link, and while there's no wired daisy-chain output, a Y-cable or two could accomplish the same end. I did note a couple of ergonomic issues. First, the Nano's audio-sensing auto on/off was poorly calibrated. The sub takes a solid 30 seconds to come to life (apparently, there's an elaborate DSP-boot routine), yet my sample had only a five-minute or so delay for no-signal turn-off. So if you have a long, quiet sequence followed by a sudden explosion (for example), you're going to miss out on the bottom end of that boom. (Artison told us at press time that the no-signal turn-off is now set to about 15 minutes, though the best solution might be to either leave the sub always on or drive it with a 12V trigger from the receiver or preamp.)

Second, I encountered an odd ground-loop problem with the Artison wireless link when powering the transmitter from a convenient USB port. Whether it was powered from a port on my pre/pro, Blu-ray deck, or cable box, an odd, burbling whine was audible about 30 dB down—more than loud enough to be clearly heard over quiet scenes or passages, and painfully evident on silent ones. But when I powered the transmitter box from its supplied USB-out wall-wart, this disappeared entirely; lesson learned. (Artison's manual doesn't explicitly state that the transmitter can

be powered by a USB port, but neither does it forbid it. The sub was perfectly silent when hard-wire connected.)

All this held true for any rational levels in my roughly 2,800-cubic-foot office/studio: music playback I'd describe as "near-party," but still short of "nuisance-complaint." Pushing volume beyond this point induced no pain or shutdown from the Nano; it simply stopped "keeping up." The result was that overall tonality became brighter, or at least less balanced, as the Artison's very smart limiting protected it from self-destruction or even from producing any rude noises. This was particularly evident on most pop music, which is highly compressed. A full orchestra, which rarely exploits higher bass levels, could sound

good deal of punch on bassist Rocco Prestia's trademark pops, and the puff of the B3 organ's low notes lost body and impact. But within its volume abilities, the tiny sub reproduced a low D from a five-string (or drop-tuned four-string) electric bass—about 37 Hz—with a measure of fundamental authority, as well as enough "bass mass" to balance overall musicality nicely, which is damned impressive for something smaller than a breadbox.

Movie sound was fairly remarkable, too. A cable showing of *Mission: Impossible II* produced the requisite deep impacts at healthy (if not fully cinematic) levels. Of course, the tiny Artison couldn't match my everyday sub for floor-bending sub-bass on the movie's largest-scale explosions, but it easily yielded fully involving sound (without tripping my ear/brain mechanism's inadequate-bass warnings)—orders of magnitude better than those of the similar-sized "subwoofers" included with most HTIB systems.

theater (TV room), whose everyday sub is a home-brew sealed-12, and over the course of a week of casual TV and movie viewing, I found little to complain of. This smaller room, where calls for reference level are rare, seems the perfect sort of place for the Nano.

Me, I'm not quite ready to sacrifice that last half-octave (and a hatful of decibels) for a few cubic feet of *lebensraum*, but I know my other half would do it in a New York minute—a factor likely to key the Nano's success. But bass-heads and their loved ones may not need to compromise much longer; if the trend suggested by Artison's RCC Nano 1 is any guide, in another few decades we'll be enjoying 15 Hz at 120 dB from a sugar cube. ♦

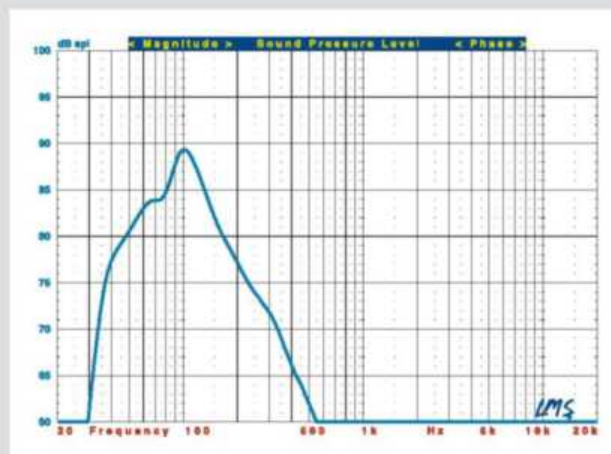
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Test Bench

Artison RCC Nano 1 Subwoofer



CLOSE-MIKED RESPONSE in Music mode, normalized to level at 80 Hz: lower -3 dB @ 53 Hz, -6 dB @ 42 Hz, upper -3 dB @ 141 Hz with Low Pass Freq. control set to maximum.—MJP

SPECS

6.5 in aluminum-cone woofer (2); 300 watts, 900 watts peak, Class D; line input (1/8 in minijack), speaker-level input (removable IEC/Phoenix wire terminals); IR-sensor inputs (1/8 in minijack), 12-volt trigger, (removable IEC/Phoenix wire terminals); Low Pass, Phase (continuously variable) controls; 12-/24-dB/oct. slope, audio-sense/12-volt-trigger/manual power-mode mini-switches; continuously variable volume (on remote control); 7.5 x 8 x 9 in (WxHxD), 18 lb

Bottom Line

The fact that you can buy louder/deeper bass for half the

Nano's price but 27 times its volumetric size is obvious. Artison's new micro is without doubt the smallest serious sub, with serious performance, I've ever encountered, the first 6-inch (OK, 6.5-inch) subwoofer I've found to be truly worthy of the name. I dropped it into my "civilian" home



● The Nano remote includes buttons for Movie and Music modes.

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Entertainment Reviews in High Definition



BLU-RAY

Mad Max: Fury Road



High-Octane Juice for Home Theater



After the gasoline (and almost everything else) has dried up, only the baddest of badasses have managed to survive in the barren future of *Mad Max: Fury Road*. And surviving is enough for Max Rockatansky (Tom Hardy stepping into Mel Gibson's well-worn leather), a former cop with but one stubborn shred of decency remaining. He's a handsome enough actor, but he finds himself behind another Bane-like mask for much of his screen time: Captured, used as an unwilling blood donor, and thrust into the center of a deadly pursuit by three rival warlords, he unexpectedly finds himself protecting a cargo more precious than "juice," with a long and furious road ahead.

Tormented by the ghosts of those he's left behind, this Max is plenty mad, and he inhabits a vast world that outweirds even *300*. Yet the drama is real, anchored by an equally intense Charlize Theron as a career road warrior with a shot at redemption. The results are operatic in their scope and



BLU-RAY

STUDIO: Warner Bros., 2015
ASPECT RATIO: 2.40:1
AUDIO FORMAT: Dolby Atmos / TrueHD 7.1 core
LENGTH: 120 mins.
MPAA RATING: R
DIRECTOR: George Miller
STARRING: Tom Hardy, Charlize Theron, Nicholas Hoult



RATINGS	Poor	Fair	Good	Excellent	Reference
PICTURE	★	★	★	★	★
3D-NESS	★	★	★	★	★
SOUND	★	★	★	★	★
EXTRAS	★	★	★	★	★

tiny specks of approaching enemies in the distance. The 2.4:1 movie was shot digitally, and I noted rare, mild video streaking in some fast action, and only minimal ringing. While justly lauded for his embrace of old-school stunt work, director George Miller also takes full advantage of 30 years' progress in filmmaking techniques since his last foray with Max, although surprisingly, a few of the special effects call themselves out.

Sonically, the movie starts out with relative calm, as exposition is delivered in the briefest of sound bites phased between the surrounds, subtly drawing us into the story before the first chase. We don't have long to wait, and we are promptly treated to the palpable rumble of mighty engines, the expansive cheers of an adoring throng, and the sharp directionality of whizzing harpoons and zooming vehicles. Explosions are plentiful and spectacular, and the ominous and thrilling score by Junkie XL enhances this ride tremendously with its impressive clarity, skillful mix, and sheer power. I'm looking forward to securing my Dolby Atmos rig later this year so I can fully appreciate what this track has to offer.

The six behind-the-scenes featurettes range from four minutes to almost half an hour, each with a different focus, including a compilation of unaltered production footage and test shots of the jaw-dropping car/truck/motorcycle/etc. stunts. There are also three deleted scenes in HD, all understandably sacrificed. The Blu-ray arrives bundled with a DVD and a unique printed code for an UltraViolet Digital Copy. Frankly, it should have come with seat belts. ● **Chris Chiarella**

soundandvision.com

"If I'm gonna die, I'm gonna die historic on the Fury Road."



FURIOUS 7

ONE LAST RIDE

Universal



After their last adventure in London, the team headed by Dominic Toretto has made a new enemy in ex-black ops assassin Deckard Shaw, the brother of Owen Shaw, the mercenary they just took down. With revenge on his mind, Shaw systematically targets every one of the crew for death, and they must band together in order to survive—which isn't a guarantee. Help comes from Mr. Nobody, a secret U.S. government agent who is willing to trade support for the gang as long as they can capture Ramsey, a hacker who has created a technology that will make finding Shaw a piece of cake.

The plot is as far-fetched as they come, but it's an action movie, and you're supposed to check your brain at the door. If you fail to do that, you'll wonder whether any of the writers ever took a physics class. Cars don't fly unless you're in the *Furious* universe where they do actually fly—more than once. They can roll down mountains with the occupants walking away without a scratch, and can be turned into Swiss cheese from .50 caliber bullets and still hit triple digits on the speedometer. *MythBusters* could fill an entire season's worth of episodes from this one movie. That being said, it's a hell of a ride.

The digitally shot production looks outstanding on Blu-ray with only the occasional speed bump along the way. The color grading varies from orange to turquoise, depending on the scene, and some of the longer shots lack the pinpoint detail needed to receive a perfect score. Black levels are inky, but shadows on a couple of occasions are slightly obscured. Equally impressive is the DTS-HD Master Audio 7.1 soundtrack, which is near reference-quality. The surround envelopment is outstanding, and the dynamics are incredible. The bass doesn't dip quite as deep as it could, and dialogue intelligibility is an issue in some of the action scenes.

The supplement package includes two versions of the movie—theatrical and extended—four deleted scenes, featurettes about the numerous stunts, cars, and fight scenes, as well as a bonus DVD and UV Digital Copy.

I enjoyed the film but felt it was much too long at 140 minutes, with too many never-ending action sequences. There is a tribute to Walker in the final scene that's tastefully done; he'll certainly be missed if there's a *Furious* 8 in the making.

● David Vaughn



BLU-RAY

STUDIO: Universal, 2015
ASPECT RATIO: 2.40:1
AUDIO FORMAT: DTS-HD Master Audio 7.1
LENGTH: 140 mins.
MPAA RATING: PG-13
DIRECTOR: James Wan
STARRING: Paul Walker, Vin Diesel, Dwayne Johnson



CINDERELLA

HAPPILY EVER AFTERING

Disney



Once upon a time, there lived a beautiful, warm-hearted girl named Ella, whose happiness is shattered when her mother dies. Her father later remarries to a stern widow, who moves in with her two cruel daughters and...

Unless you lived a deprived childhood, you already know the Cinderella story. The story goes back centuries, but to most of us today, it's the 1950 Disney animated version that comes to mind when we think of it. Gone was the truly grim Brothers Grimm version, where the stepsisters cut off parts of their feet to try to fit into that glass slipper! Disney's animated *Cinderella* was fiercely kid-friendly and certainly well done, though it suffered a bit in comparison to the genuine Disney masterpieces that preceded it: *Snow White and the Seven Dwarfs*, *Pinocchio*, *Fantasia*, and *Bambi*.

Disney has now re-imagined the story as a live-action feature. While its plot closely follows the 1950 version, it's superior in every respect to that earlier effort and a genuine treat for audiences of all ages. The production design is breathtaking, and director Kenneth Branagh gets the best from his standout cast. Cate Blanchett feasts on her role as the cruel stepmother, and while other familiar faces also grace the film, the star-turn here is a luminous Lily James in the title role (some readers will recognize her as the fun-loving and rebellious Lady Rose in *Downton Abbey*).

The video transfer could hardly be better. The detail is crisp, the colors radiant, and the black levels solid. Please, Disney, release this film on UHD Blu-ray as soon as that format launches, including 4K, wide P3 color, and HDR.

As for the sound, this isn't a "stuff blowing up real good" mix. But

there's plenty going on, particularly in the coach/pumpkin transformation scenes. And as for Patrick Doyle's sweeping score, all I can say is, "Wow." Combine the Blu-ray's striking visuals and its clean, majestic soundtrack, and you have one of the best system show-off discs of the year—and a treat for those action-phobic friends who ran screaming from your house when you dropped *The Avengers: Rage of Godzilla* into the Blu-ray player.

The extras include several making-of documentaries, an alternate opening sequence, and *Frozen Fever*, the animated short that accompanied the film's theatrical release. All of them are fine, but short and not particularly compelling. A commentary track would have been welcome.

● Thomas J. Norton



BLU-RAY

STUDIO: Disney, 2015
ASPECT RATIO: 2.39:1
AUDIO FORMAT: DTS-HD Master Audio 7.1
LENGTH: 105 mins.
MPAA RATING: PG
DIRECTOR: Kenneth Branagh
STARRING: Cate Blanchett, Lily James, Richard Madden





DAY FOR NIGHT

THE SEARCH FOR MAGIC

Criterion Collection



In 1972, Francois Truffaut, the pioneer auteur of the French New Wave movement, was in a rut. His first three feature films—*The 400 Blows*, *Shoot the Piano Player*, and *Jules and Jim*, masterpieces from the late '50s and early '60s—had been followed by nine more, all but one (*The Wild Child*) critical and box-office duds. To rouse himself, he made a film about his life's deepest passion: film itself. *Day for Night* is the result, and not only does it rank high on the list of Truffautian delights, it's also the best film ever made about filmmaking. (I exclude Fellini's *8-1/2*, which is more about a filmmaker's creative neuroses.) Most of Truffaut's films are autobiographical to some degree, but this one is nearly solipsistic—Truffaut himself plays the film-within-a-film's director, Jean-Pierre Leaud (his longtime cinematic alter-ego) plays the film's lead actor—and unapologetically so.

The film begins with what seems to be a murder on a crowded Parisian street, but then we hear Truffaut shout "Cut!" and the view widens to reveal a camera, a crane, a crew, and a dozen or so extras. The rest of *Day for Night* flits back and forth between story and reality—though, of course, this reality is a story too. (The film's French title, *La Nuit Americaine*, refers to a lens-filter that makes daytime scenes look like night.) Truffaut may have got the idea from Alfred Hitchcock, who, during their famous interview, mulled that someone should make a movie that contrasts the dull story on screen with the exciting tensions, romances, and tragedies behind the camera. Ultimately, the film is a celebration of the search for magic. Leaud's callow character goes around the set, asking everyone, "Are women magical?" Everyone on the set accepts, as a premise, that movies are magical. We see Truffaut haunted by the same dream, in which hounding producers ask why he doesn't make political movies or erotic movies—followed by another, soothing dream of a boy (presumably his younger self) stealing still-shots from *Citizen Kane* posted outside a cinema.

Criterion's 1080p transfer is a bit softer than usual, though I vaguely recall this was how the film always looked. It's far superior to earlier DVDs, which were scratchy and ill focused besides. The special features are excellent: smart analysis by film critics; interesting interviews with Truffaut, cast, and crew; and a fascinating discussion of Truffaut's feud with his erstwhile comrade-turned-ideological-foe, Jean-Luc Godard.

● Fred Kaplan



BLU-RAY

STUDIO: Criterion Collection, 1973
ASPECT RATIO: 1.66:1
AUDIO FORMAT: Uncompressed mono
LENGTH: 116 mins.
MPAA RATING: Not rated
DIRECTOR: Francois Truffaut
STARRING: Jacqueline Bisset, Jean-Pierre Leaud, Francois Truffaut



CITIZENFOUR

TRAITOR OR PATRIOT?

Anchor Bay



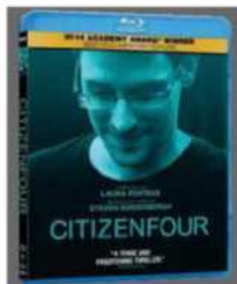
After 9-11, the National Security Agency developed a top-secret surveillance program called Stellar Wind, in which the NSA could arbitrarily and without restriction, monitor and record all citizens' communications. In early 2013, a curious correspondence of encrypted e-mails began between a documentary filmmaker and an anonymous source known only as Citizenfour. Documentarian Laura Poitras was already under government scrutiny after making films about the U.S. war in Iraq and Guantanamo. Her mysterious correspondent turned out to be none other than Edward Snowden, the senior government employee in the intelligence community and future alleged traitor to the United States.

Citizenfour documents the evolution of that highly sensitive correspondence between Snowden, Poitras, and journalist Glenn Greenwald, and the fallout of Snowden's revelations to the global media. From his Hong Kong hotel room, Snowden details the minutiae and lengths to which the NSA goes to observe and record our communications from e-mails to texts to Google searches and so on. When that incendiary piece of information goes public and the shit hits the proverbial fan, we get a firsthand look at how Snowden's life begins to rapidly constrict and become more precarious by the hour. Poitras herself was under such hostile persecution from the NSA that she was forced to move to Berlin to protect her film footage from being confiscated at the U.S. border.

Citizenfour was shot on high-grade digital video, and the HD picture sports the appropriate visual quality with grain and image blur. That's not necessarily a bad thing since it enhances the overall mood of paranoia and gives the proceedings a definite sense of immediacy. Nothing about this feels fake or dramatized, but this is a documentary, after all. The sound is rendered for DTS-HD Master Audio 5.1, but it never tries to be flashy. Still, every time the telephone rings or a fire alarm goes off, it's legitimately spooky, specifically because it isn't overstated for dramatic effect. Voice-overs and music interludes are effective but used sparingly.

Public opinion seems decisively split on Snowden and his actions, and if you're one of those people who still side with the government's assessment that he is indeed a traitor and should be punished accordingly, I would challenge you to watch this film with an open mind, if you can.

● Corey Gunnestad



BLU-RAY

STUDIO: Anchor Bay, 2015
ASPECT RATIO: 2.39:1
AUDIO FORMAT: DTS-HD Master Audio 5.1
LENGTH: 113 mins.
MPAA RATING: R
DIRECTOR: Laura Poitras
STARRING: Edward Snowden, Glenn Greenwald, William Binney



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TEXAS RISING

LONE STAR REVIEW

Lionsgate



A lofty undertaking of the History Channel, *Texas Rising* chronicles the one-time republic's struggle for independence from Mexico. Lavishly produced, this miniseries features an all-star cast anchored by Emmy-winner Bill Paxton. Fleeting cameos by marquis actors exemplify the meticulous detail and massive budget that attended this production. Unfortunately, this great American saga and the men who empowered it are poorly served here. The acting is stiff and fails to evoke empathy or interest, due largely to scripting choices and mundane dialogue.

Video quality is a mixed bag. Color rendition is superb, comprised primarily of resplendently resolved earth tones. Bright colors—the red and blue of Santa Anna's uniform, for example—at first seem dull and muted but, upon closer inspection, are beautifully balanced. Fine image details are sharp and clear without noticeable enhancement. The downside? Filmed on location in Durango, Mexico, *Texas Rising* consists largely of outdoor shots outside in bright—and perhaps manipulated—sunlight. You end up with a profound loss of contrast and a washing-out of white level. Coupled with the prevalent use of shallow focus, this results in images that more often resemble a 19th-century photograph than a 21st-century digital transfer.

Texas Rising's production values are more impressively showcased by its superb DTS-HD soundtrack. From the opening credits, we're treated to some of the most exciting and realistic sound you'll find on Blu-ray. Dynamic impact is resolved in a way that will raise goose bumps, as will the abundance of high-quality Foley effects. Dialogue is natural and exceptionally intelligible, while fine details are rendered with clarity and focus. Surround information is otherworldly, with a subtle, atmospheric quality that will test the front-rear balance of your system.

Included with the Blu-ray package are three quality extras. Best of these is a making-of feature that offers fascinating insight into production details such as costume design and the "Cowboy Training" in horsemanship and gunplay that prepared the actors. A pair of illuminating documentaries detailing the lives of Sam Houston and Santa Anna offer historical facts interspersed with film clips and commentaries by the stars who portray them. It is these special features, rather than the mini-series itself, that will most delight History Channel viewers.

● Anthony Chiarella



BLU-RAY
STUDIO: Lionsgate, 2015
ASPECT RATIO: 2.39:1
AUDIO FORMAT: DTS-HD Master Audio 5.1
LENGTH: 7 hours, 30 mins.
MPAA RATING: N/A
DIRECTOR: Roland Joffe
STARRING: Bill Paxton, Brendan Fraser, Ray Liotta



HIROSHIMA MON AMOUR

BIG DEATH, LITTLE DEATH

Criterion Collection



An abstract-looking credits image of a plant frozen in ice with jagged, disconcerting atonal music makes a perfect opening for this formalistic study of a moment locked in history and its aftereffects resonating through to the present. Thereafter, the film settles into a more traditional story—a French film actress and a Japanese man spending their last 36 hours in Hiroshima together before each must return to their spouse—albeit one with a nonlinear narrative filled with sudden tiny flashbacks and jump cuts from moment to memory. Directed by Alain Resnais from a screenplay by *nouveaux roman* writer Marguerite Duras, *Hiroshima Mon Amour* explores the necessity and impossibility of remembering or understanding history without personally experiencing it—and not always then.

Restored in 4K in 2013, the film's transfer looks excellent for its age, completely free of damage caused by history except in documentary footage that's also soft compared with the newly shot material, emphasizing its relative veracity. There are the deep blacks of fallen-out hair in a museum display and a wide range of grays. But whites can vary in brightness depending on lighting, increasing contrast along with sharpness and detail. Therefore, romantic bedroom scenes are more abstracted by shadow and low resolution, creating a mood, while harsher, cold-light-of-day moments, dealing with her past or their present dilemmas, are more brittle and distinct.

"Rain causes panic—a rain of ashes." "The heat of 10,000 suns." "200,000 dead and 800,000 wounded in nine seconds." Dialogue, mixing poetry with facts, is always clear and full, while Georges Delerue and Giovanni Fusco's poignant, mournful score—consisting mainly of piano, flute, oboe, and bass—is equally clear and solid. All hiss, pops, or other audio distortions have been cleaned up.

A commentary by film historian Peter Cowie analyses meaning in the cinematic language of Resnais' images and montages. Ninety-three minutes of fascinating featurettes include ones discussing the production and aspects of the score. Another examines the 4K restoration, describing scanning the camera negative and advances in 4K digital technology. Others are archival: interviews with the director, who refuses to explain meaning but reveals background, and actress Emmanuelle Riva talking about the shoot and Resnais' unique style. ● Josef Krebs



BLU-RAY
STUDIO: The Criterion Collection, 1959
ASPECT RATIO: 1.37:1
AUDIO: Linear PCM 1.0
LENGTH: 90 mins.
MPAA RATING: NR
DIRECTOR: Alain Resnais
STARRING: Emmanuelle Riva, Bernard Fresson, Eiji Okada



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David Vaughn,
Sound & Vision.com,
Feb/March 2015

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Bob Ankosko,
Sound & Vision.com,
Dec 2014

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Fin Costello

"Be cool or be cast out." So goes one of the pivotal lines in "Subdivisions," the indelible lead track from Rush's transitional 1982 album *Signals*, and it's also a statement that aptly describes the band's own fortunes as it navigated a hard-won ascendance from perennial cult favorite to mass acceptance over the course of its five-decades-and-counting career. The band recently completed a triumphant 40th anniversary tour dubbed R40, celebrating its genuine Rock & Roll Hall of Fame legacy by performing a 23-song set in reverse chronology. (Actually, "Reverse Chronology" sounds like a lost track from the band's mid-'80s synth-centric period.) I saw Rush's late-June stop at the Prudential Center in Newark, New Jersey, and marveled at the ever-present breadth of the band's sound and how bassist/keyboardist/vocalist Geddy Lee, guitarist Alex Lifeson, and drummer Neil Peart were able to modernize decades-old material like "Jacob's Ladder" and "Lakeside Park" without compromising each track's initial, individual compositional integrity and charm.

To coincide with both R40 and the band's Ruby anniversary, UMe instituted a 2015 reissue campaign of one remastered 180-gram LP and companion high-resolution 96-kHz/24-bit download card per month, or you could opt for downloading the hi-res digital releases separately. Not only that, UMe issued three surround-sound mixes via the High Fidelity Pure Audio Blu-ray format—1975's *Fly by Night*, 1977's *A Farewell to Kings*, and 1982's *Signals*. These mixes were originally done for DVD-Audio by Richard Chycki and were included one each in 2011's trio of *Sector* box sets. In direct track-by-track A/B comparison, it's quite apparent the Blu-ray versions have much more impact and presence overall. The aforementioned "Subdivisions" is a prime example—on DVD-A, the vocals on the chorus are not as rich, nor is the overall mix as fully enveloping or as imposing as it is on Blu-ray.

Fly by Night is the band's second album and the first to feature Peart on drums and lyrics. While chugfests like "Anthem" and "Beneath, Between & Behind" rock hard in the FM-ready style of the day, the dreamily acoustic musings of "Rivendell" reveal a softer side. You can hear Lifeson's fingers move across the frets of his classical acoustic guitar

in the center and front right channels, while Lee's more understated vocals nestle in the front left. "By-Tor & The Snow Dog" is the album's epic showcase, especially when the fight between the titular characters takes off in the rears, with the growling guitar effect in the rear right countered by the snarls in the rear left before they bound across the other channels mid-chase, culminating with the entire band marching backwards together in all channels, one note fewer with each pass.

A Farewell to Kings is the apex of the band's progressive expanse. The insistent Minimoog stabs on "Xanadu" sometimes totally devour the front field, and other times they slash from front left to rear right like a synthesized lightning bolt, all while the band's intuitive interplay is supported by an insistent echoing chime in the rear left and rear right. Album closer "Cygnus X-1" finds Lee's edge-of-distorted bass and Peart's sly cymbal work taking center stage while Lifeson's blindingly present guitar propels the track into, well, outer space. Somebody should commission Chycki to do a full-on Dolby Atmos mix of this one, right quick.

Signals served as a siren call for change after the career-defining impact of 1981's *Moving Pictures*, and it wound up being the last album the band would enlist Terry Brown as its producer. Growing pains are evident in the cacophonous reggae staccato of "Chemistry," with its keyboard washes duking it out with lead guitar to see who gets a foothold in the mix. (Neither really did.) But when the technology blend fires on all cylinders, as it does with Lee's dramatic Oberheim OB-X flourishes on

"Subdivisions" and the poignant, squeal-rific guest electric-violin solo by Ben Mink on "Losing It," the bridge to the band's ever-present hunger for sonic exploration was firmly locked in place.

With six of Rush's 20 studio albums already well ensconced in 5.1, it would be beyond thrilling to hear Chycki tackle the rest of the band's catalog, such as the virtuosic cosmic reach of 1978's *Hemispheres*, the Cold War sheen of 1985's muscular *Power Windows*, and the art-rock/alt-rock mesh of 1991's *Roll the Bones*—for starters. The three men who comprise Rush continue to forge ahead as wonders in the world they've wrought, and this trifecta of surround-sound excellence on Blu-ray only reinforces how they get closer to our audiophile hearts with every ensuing spin. It's the one true Revenge of the Nerds. ● **Mike Mettler**



BLU-RAY

LABEL: Anthem/Mercury

AUDIO FORMATS: 96-kHz/24-bit PCM Stereo, 96-kHz/24-bit DTS-HD Master Audio 5.1, 96-kHz/24-bit DolbyTrueHD 5.1

NUMBER OF TRACKS: 8 (*Fly by Night*), 6 (*A Farewell to Kings*), 8 (*Signals*)

LENGTH: 37:51 (*Fly by Night*), 37:21 (*A Farewell to Kings*), 43:03 (*Signals*)

PRODUCERS: Terry Brown, Rush (original mixes), Richard Chycki (5.1 mixes)

ENGINEERS: Terry Brown (*Fly, Farewell*), John Woloschuk (*Fly by Night*), Pat Moran, Declan O'Doherty, Ken Thomas (*A Farewell to Kings*), Paul Northfield, Robbie Whelan (*Signals*)

PERFORMANCE ★★★★★
SOUND ★★★★★



Fin Costello

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If you're French, you don't just build a speaker, you build a *French* speaker—one that takes design seriously. So seriously that you might end up with a speaker that looks nothing at all like a traditional (boring) speaker. La Boite

Concept made a name for itself in Europe with the imaginative High-Fidelity Laptop Dock, a small desk featuring an integral sound system and high-quality USB DAC. The Cube is an extension of that concept that would seem to be ideally suited for small living spaces.

Developed in collaboration with Paris-based designer Samuel Accoceberry, the Cube is essentially a small coffee table that doubles as a wireless speaker system. It's a highly compact affair, standing only 18.5 inches tall and measuring 19 inches across, equipped with a glass shelf sturdy enough to support a turntable or CD player for those who

prefer classic hookups. Otherwise, you can use it for books, flowers, or whatever.

You can't miss the 5-inch woofer and dual aluminum ports on its face, and if you stand over the Cube and look down, you'll find a control panel

centered along the back edge with a 3-inch full-range driver on either side; each driver is mounted on an angle and fires upward, making use of deflected sound to create a widened soundstage that La Boite calls Wide Stereo Sound 2.0. The system is actually a patented 2.1 speaker configuration powered by an internal Class D amplifier that delivers 50 watts to the woofer and 2 x 25 watts to the main speakers.

The Cube supports wireless streaming via Bluetooth/aptX and AirPlay but also has RCA inputs and a 3.5mm minijack input for direct hardware hookups as well as an optical input for connecting a TV. Fans of vintage gear will love its toggle power switch and old-school volume, bass, and treble control knobs—all mounted on an elegant brushed-aluminum plate. The Cube costs \$1,100 and is available in a black lacquer or light oak finish. —*Bob Ankosko*



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